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Combined Meetings of Sections.

SECTION OF ANÆSTHESIA AND SECTION OF OTO-RHINO-LARYNGOLOGY.

Anæsthesia in Ear, Nose and Throat Surgery.

A COMBINED MEETING of the Section of Anæsthesia and the Section of Oto-Rhino-Laryngology was held to discuss the subject of anæsthesia in ear, nose and throat surgery.

R. PALMERSTON RUNDLE (Townsville, Queensland) read a paper entitled "Local Anæsthesia in Otolaryngology". He said that all oto-laryngologists preferred local anæsthesia for some of their operations and the field could be extended by using suitable prenarcosis, a safe analgesic and systematic technique. Local anæsthesia removed the demand for an expert general anæsthetist in many cases. It was shockless, almost bloodless and so time-saving. It made the patient comfortable. He did not vomit or use the bed pan or urine bottle. The distressing period during which ether was excreted was absent, convalescence was shorter, and there were no pulmonary complications. The period spent in hospital was greatly reduced. The actual surgery was easier and better, as the field was clear. The solution inflated the tissues and made planes more obvious, and this helped the dissection. The danger inherent in complex machines was absent, and so safety was increased; the anæsthetic apparatus, often unsterile, was not in the surgeon's field. Suboxidation, cyanosis and consequent oozing did not occur. Dr. Rundle said that he performed nearly all his surgery with the patient under local anæsthesia, except in very young children, and his patients were satisfied. He adopted Corlette's definition that local anæsthesia meant "any condition in which the pain sensation of a part of the body is benumbed or abolished to permit the performance of an operation". For topical anæsthesia he used 1% "Decicain" solution, four parts, to a solution of adrenaline chloride one in 1000, one part; of this mixture he used a maximum of 500 millilitres, and for local infiltration he used a procaine solution of strength from 2% to 0·5%. He did not use cocaine at all. He said that the systematic use of adrenaline was essential. It gave a reasonably bloodless field, increased the anæsthetic effect, anchored the analgesic drug, prolonged its effect and slowed its rate of entry into the blood-stream with consequent safety. Suction or constant reciprocation of the needle prevented the intravenous injection of adrenaline. The use of a gentle technique was essential, as induction should not cause pain. A technique to ensure that should be used. Thin sharp needles, progressive weals and effective premedication were helpful, the last-mentioned especially in children, with whom a sound psychological approach was of value. A suitable environment during

induction should be planned. Effective, systematic, definite, individual premedication was essential. It might need modification on the operating table. Dr. Rundle recommended Corlette's dosage table. When premedication failed, general anæsthesia might be required. Any surgeon widening his field of local anæsthesia should in fairness strictly adhere to the detail in a standard description, and make no alteration in any details until he had acquired facility. To save time and to secure good results the operating list should be planned. One should carry out two inductions with local anæsthesia, operate on the first patient and then carry out induction and operate alternately. This secured an anæsthetized patient waiting for full effect during his predecessor's operation. General anæsthetic administrations were suitably interspersed.

J. E. GILLESPIE (Victoria) read a paper entitled "General Anæsthesia in Ear, Nose and Throat Surgery". He said that his purpose was not so much to suggest that general anæsthesia should be used in all ear, nose and throat work as to show what types of anæsthesia could be used, and to indicate which type of anæsthesia was most suitable for some of the various operative procedures. Admittedly some ear, nose and throat operations were better carried out under local anæsthesia. On the other hand, from the point of view of the surgeon, and even more from that of the patient, general anæsthesia had many advantages, especially for certain operations. The principal one of the latter was tonsillectomy, both in adults and in children. Radical antrostomy and attico-antrotomy could also be performed under a general anæsthesia, with much more comfort and no further risk to the patient and with just as little inconvenience to the surgeon. Endoscopy, particularly with modern anæsthesia and relaxants, was a far easier procedure for both doctor and patient if carried out with the aid of an anæsthetic which made the patient unconscious of what was happening. With regard to premedication, the aim should be to calm the fears of the patient and to reduce secretions in the airways. In work under general anæsthesia the premedication need not be so heavy or so hazardous as that sometimes used for local anæsthesia. With children particularly, general anæsthesia was *par excellence* the anæsthesia of choice with suitable premedication. Discussing general anæsthesia, Dr. Gillespie said that for adults and children over the age of six or seven years a smooth induction with "Pentothal" could be followed by administration of any of the well known agents. He referred to the use of "Trilene" insufflated through the Boyle Davis gag for women and children, and the use of the "Pentothal"-ether sequence for adults. He said that for robust adults it was perhaps wise to perform the intubation by the nasal route, though it might be difficult to pass a large enough tube through the nostril. However, intubation was not essential, as induction could be carried out in the toughest person reasonably quietly by the use of a sleeping dose of "Pentothal" followed by a mixture containing chloroform, one part, with ether, two parts, changing over to open ether insufflation. In a series of 125 cases no trouble has been encountered with this method over the preceding ten months. In no case had more than one and a half ounces of the mixture been found necessary. Provided that the sucker was working efficiently and the surgeon was alert to the danger of blood entering the glottis, no difficulties had been met with from insufflation of blood. In antrostomy, attico-antrotomy and submucous resection the choice between local and general anæsthesia was not so pronounced. For the nervous adult general anæsthesia was to be preferred. In this connexion Dr. Gillespie discussed premedication, induction with "Pentothal" and the use of relaxants. He said that endoscopy could be carried out comfortably for both surgeon and patient with the patient under general anæsthesia. Fenestration, which was often tedious, could be carried out conveniently to both surgeon and patient with a combination of local and general anæsthesia. Premedication required to be reasonably heavy. Should the patient show signs of restlessness early in the operation, pethidine, 50 milligrammes given intravenously, reinforced the premedication and usually produced sleep for up to an hour or more. After that, small doses of 5% strength "Pentothal" would serve to carry the patient through in a state of unconsciousness. Local anæsthesia was used to promote requisite analgesia. Stating his conclusions, Dr. Gillespie said that for most cases of ear, nose and throat surgery a combination of local and general anæsthesia was the most suitable for both patient and surgeon. The general anæsthesia was used more to promote unconsciousness than to attain a great degree of analgesia.

G. C. SCANTLEBURY (Victoria) said that deciding whether to employ local or general anæsthesia was frequently a matter of individual preference. However, the dividing line was not rigid in many cases. Both forms of anæsthesia were really true arts, and it was a question not of what was used, but of how it was used. After practice, technique with local anæsthesia could well be standardized, particularly when one was operating with the same team in the same hospital. There must be a set organization, and if that was not available—for instance, after one had left one's own public hospital—it was often easier and better to use general anæsthesia. Dr. Scantlebury said that Dr. Rundle had spoken of the syringe and needle he used. His own preference was for the dental type of needle. In submucous resection of the septum he liked to get "Novocain" under the perichondrium as well, because it helped the dissection. For tonsillectomy he thought that local anæsthesia was rarely used in Melbourne at the present time. With general anæsthesia it had become even more of an art. In earlier times everything had been arranged to suit the surgeon; nowadays the patient should come first. Now that much better equipment was available, that was possible. In performing direct laryngoscopy for removal of a benign tumour, Dr. Scantlebury felt that there was nothing better than straight insufflation anæsthesia.

R. H. VON DER BORCH (South Australia) found himself substantially in agreement with the previous speakers, and added that it was a platitude to say that a lot was owed to the anæsthetist. He said that possibly the main ear, nose and throat problem was hæmorrhage and its control. In that regard he always felt dissatisfaction with general anæsthesia when operating in any deep cavity, such as the antra or ethmoids; that was a region in which he did not think a bloodless field could be achieved by distension of the tissues with fluid. In endoscopic work he had never enjoyed local anæsthesia, but the work had become very much easier with relaxants and general anæsthesia. For one period during the war he had performed many tonsillectomies under local anæsthesia when the organization in that particular hospital had lent itself to performing many operations expeditiously. However, he had found that there was more reactionary hæmorrhage. He wondered whether it might not be asking too much for the anæsthetist to provide facilities for local anæsthesia and to apply them as well.

D. R. C. WILSON (Western Australia) said that he considered local anæsthesia important, but it should not be given an almost exclusive pride of place. He thought that Dr. Rundle must have been singularly unfortunate in the difficulties he had encountered; with present medical training such catastrophes in organized surgery were complications to be considered as museum pieces, though they could become litigation pieces. Speaking of the apparent complexity of anæsthetic machines, he suggested that that was mostly an illusion. He agreed that the theme of the child terrified and affected throughout life, as a result of experience of a general anæsthetic and mishandling, could not be overstressed. The busy practising anæsthetist, who knew that time spent in preparing his young patient by explaining things and allaying fears was time well spent, also knew that he almost never had the time to do that or he himself was well spent. However, perhaps as a result, a more reliable routine had been evolved to allay fear and prevent later complexes. Dr. Wilson referred to the patients who asked for local anæsthesia because of fear of an unpleasant induction, but said that with the improvement brought about by new anæsthetic agents and new techniques, for example, intravenous induction, a generation should be growing up free from the old fear, and the demand for local anæsthesia was likely to decrease.

Dr. Wilson made a plea for the use of intravenous induction. Turning to the question of premedication in children, he referred to tragedies resulting from the use of paraldehyde when ounces had been given by mistake instead of drachms, and said that precautions must be taken against such errors. He thought that many criticised "Seconal" unduly; the main criticism related to its short maximum effect, which made correct timing difficult and caused trouble when an operating list was long, but that effect was an advantage post-operatively. Dr. Wilson considered that the rectal administration of thiopentone as a basal narcotic was in the realms of general anæsthesia; it should be treated as such, and general anæsthesia might as well follow. Dr. Wilson said that he had found very few children down to the age of eighteen months, or even less, whose veins could not be punctured for intravenous induction. The knack was the correct pressure around the arm and the proper holding of the forearm to prevent rotation. If the child was properly premedicated or reasonably handled, the injection was rarely much resented. Dr. Wilson was sure that the hexobarbital "Cyclonal" was of great value and superior to thiopentone. For adults, a small dose of "Nembutal" given before the morphine and hyoscine lessened amnesia. Pethidine in place of morphine or "Omnopon" was effective.

Turning to surface anæsthesia, Dr. Wilson disagreed about the comparative safety of amethocaine as compared with cocaine. Amethocaine had caused deaths when applied to mucous surfaces and was especially dangerous on inflamed or broken surfaces. Safeguards were necessary. Dr. Wilson agreed that the administration of a local anæsthetic and adrenaline or saline-adrenaline solution might follow induction of general anæsthesia to produce hæmostasis, but he thought that the greatest advantage of general anæsthesia over local anæsthesia in ear, nose and throat surgery was felt in long operations that needed patient care without the need to hurry. For tonsillectomy, Dr. Wilson thought that, apart from children, local anæsthesia was often just as satisfactory as general. However, if general anæsthesia was used, intubation with a wide-bore Magill tube should be carried out. Dr. Wilson agreed with Dr. Gillespie that heavy premedication was desirable in long operations, but said that Dr. Gillespie had not mentioned whether he advocated endotracheal intubation. Intubation was essential, both to ensure a good airway and so reduce bleeding and to keep better control of the patient. During any operation, with the patient intubated, light anæsthesia could be maintained as long as there was no movement of the tube; closed, semi-closed or insufflation anæsthesia, as with a "T"-piece, could be used. The "T"-piece and its modifications were most valuable.

A. B. K WATKINS (New South Wales) said that he was particularly interested in the problem because he had been one of the first ear, nose and throat surgeons in Australia to use intratracheal anæsthesia in the 1920's. For many years he had used a fine intratracheal tube, and the results were satisfactory. Nowadays things were not quite so satisfactory; not that it was the fault of the specialist anæsthetist, who was very capable, but because the house surgeons tried to use the anæsthetists' methods with wide-bore tubes with unsatisfactory results on many occasions. The result was that there were many delays, and whereas he frequently used to perform up to a dozen operations in the afternoon, often only five seemed to be possible because of the delay; furthermore, on several occasions he had had to remove from the larynx granulomata which had resulted from the wide-bore tube. If one used "Pentothal" there was always the danger of spasm, and to overcome that a wide-bore tube was essential. He obviated the danger by advocating the use of "Evipan" or "Cyclonal" for induction and then intratracheally administered ether.

E. P. BLASHKI (New South Wales) said that he would make two points. There was a danger of some patients' being sensitive to procaine, especially now that procaine penicillin was in daily use. He asked if anyone could speak about xylocaine, of which he had had limited experience; he had not been very successful with its topical use, but with injection it had been very good. He said that deep anæsthesia was necessary for tonsillectomy, light anæsthesia was quite unsuitable. When deep anæsthesia was used, the bleeding was greatly reduced because the muscles were relaxed and the vessels could retract.

N. M. CUTHBERT (Western Australia) thought that one more thing that was still needed was a tube which did not kink. With regard to cocaine, provided none of the solution got into the stomach or on to raw areas, Dr. Cuthbert did not think that there was any danger in relation to sensitivity. He said that if the patient began to look pale he always had a syringe with one-sixth of a grain of morphine ready for intravenous injection. The cuff on Magill's tubes could sometimes lead to pressure necrosis unless one asked the anæsthetist to deflate it from time to time during long procedures.

E. A. MATISON (South Australia) drew attention to the fact that the fault was not with cocaine, but with the person administering it.

G. C. HALLIDAY (New South Wales) observed that while ear, nose and throat surgeons owed a lot to the anæsthetist for the advances which they had made, at the same time the ear, nose and throat surgeons had been guinea-pigs on many occasions, for instance, with the use of "Pentothal" for tonsillectomy. He had had very wretched experiences in that respect. With benign laryngeal tumours, too, there had been very alarming occurrences. He did admit, however, that in the past six months, with the quicker-acting relaxants, it was much better. With regard to premedication for children, most senior ear, nose and throat men favoured very little or no premedication at all. All the guile of the anæsthetist, he felt, would not completely overcome five years of inadequate upbringing.

H. J. EIZENBERG (New South Wales) said that it was important to study the temperament of every patient. It was his practice always to ask a patient whether he or she would prefer local or general anæsthesia. In his judgement the relaxants had revolutionized laryngoscopy. With reference to cocaine he said that he had been surprised to observe cocaine being injected in 0·5% solution for tonsillectomy at two important centres in the United States of America, namely at the Mayo Clinic and at Ann Arbor, Michigan.

J. F. MCCULLOCH (New South Wales) felt that from the patient's point of view there was no question that general anæsthesia was preferable to local. He admired local anæsthesia, but thought that the posturing and the general theatre atmosphere were upsetting. He felt very strongly about the advisability of limiting the amount of amethocaine used.

T. G. MILLAR (Victoria) asked Dr. Rundle whether he had found any reliable local anæsthetic agent for the tympanic membrane.

T. K. DURBRIDGE (Mildura) inquired whether rectal administration of "Pentothal" conveyed any risk of spasm. In answer to Dr. Millar's question, he said that he thought that a "Trilene" inhaler was the answer for his type of case.

R. C. WILLIS (Victoria) inquired how great was the risk of spasm with "Pentothal" anæsthesia.

N. H. GEORGEFF (Victoria) said that he would like to have used xylocaine, but found that it was not available in Melbourne. He too had found that amethocaine was a toxic drug. The teaching at Newcastle, he felt, was not consistent with that of most other hospitals.

G. I. HENDERSON (Western Australia) referred to the use of a solution of 20% cocaine alkaloid in arachis oil for local anæsthesia of the tympanic membrane, but he was not so sure of its efficacy with an inflamed membrane.

Another speaker referred to the use of a solution of cocaine in tragacanth as a means of lessening toxicity.

J. H. WILLSON (Queensland) said that in fenestration operations preliminary infiltration with xylocaine was of value; it enabled the depth of anæsthesia to become very light towards the end, and frequently the surgeon could test the patient's ability to hear through the fenestra whilst the patient was still on the operating table.

R. H. SPEIRS (New South Wales), in referring to Dr. Corlette's table, commented that the state which it produced was frequently not far short of general anæsthesia. Respiration often became depressed to a low level, and he would utter a note of caution against general anæsthesia after such premedication.

L. T. SHEA (New South Wales) said that he felt strongly about the low esteem in which administration of anæsthetics for ear, nose and throat procedures was held in public hospitals. Frequently it was relegated to the junior resident staff, and that had led, in his experience, to more frights than were experienced in any other type of operative work. Unless one had skilled anæsthetists available, he felt that the only solution was to use the simplest method possible. Referring to basal narcosis in children, such as with rectal administration of "Pentothal", he said that he would never feel happy about using it because of the difficulties of having the nursing staff watch the patient after their return to bed. The best premedication for children, he thought, was three or four grains of "Nembutal", but one must be sure that it was the parents who took it. He favoured admitting children to hospital the night before operation, and completely forbidding the parents to see the patient before operation next morning.

Dr. Rundle, in reply, said that he was substantially in agreement with Dr. Gillespie about premedication. Replying to Dr. Wilson, he said that he did not want it thought that he was attempting all operations under local anæsthesia. There were many cases more suitable for general anæsthesia.

Dr. Gillespie, in reply, stressed the importance of visiting a child the evening before operation. He said that five minutes spent with the child then was often more valuable than any form of premedication. In reply to the question about spasm with rectal administration of "Pentothal", he said that it was his experience that spasm could still occur. To Dr. Willis he replied that if a relaxant was used the risk was reduced to a minimum.

SECTION OF ANÆSTHESIA AND SECTION OF SURGERY.

Resuscitation.

A COMBINED MEETING of the Section of Anæsthesia and the Section of Surgery was held to discuss the subject of resuscitation.

I. H. CUMING (Victoria) discussed resuscitation in the pre-operative period. He said that in practice resuscitation covered a much wider field that the term literally implied. Initially, those who practised it had been consulted only when a patient was in a state of circulatory collapse, but now they were often consulted in reference to a patient's fitness for operation, or to the improvement of his pre-operative general condition. For the purpose of the present discussion, resuscitation referred to the obtaining of an optimum blood circulatory state so that a patient might be subjected to an anæsthetic and to the trauma of an operation. The causes of the state of circulatory collapse which necessitated resuscitation could be divided broadly into two main groups: (*a*) the circulatory collapse or "shock" associated with a sudden diminution of the effective circulating blood volume—for example, in hæmorrhage and traumatic shock; (*b*) that associated with fluid and electrolyte disturbances.

Dr. Cuming referred to certain principles in the treatment of the two groups of conditions and summed up with the following points: (i) In the presence of hæmorrhage with low blood pressure and peripheral circulatory failure, it was important to raise the blood pressure quickly and to reduce the peripheral failure. (ii) The treatment of traumatic shock was to remove the shocking factor; resuscitation was just a means to that end. (iii) In the presence of fluid and electrolyte disturbances, the acute conditions should be treated rapidly and the chronic ones slowly. (iv) The alimentary tract was paramount to life and should be used to the utmost advantage on all occasions; when it was not functioning, resuscitation by intravenous methods was again only a means to an end. (v) Potassium should not be forgotten; for anæmic subjects it was lethal, but the giving of potassium as a prophylactic measure in cases of fluid and electrolyte disturbances would always pay dividends.

E. B. DREVERMANN (Victoria), discussing post-operative resuscitation, said that the main factor was to maintain the patient in good general condition, until he or she was able to take adequate nourishment orally, and to meet any complications affecting the circulation which might arise. Despite other opinion that little salt should be given in the immediate post-operative period, it was his practice to give at least one litre of saline daily in order to maintain the fluid balance. If the blood protein level had been low previously, it might be necessary to give some protein, either serum or an amino acid. Of particular interest in post-operative hæmorrhage was the condition in which hæmorrhage had occurred into a closed space, and the circulating blood became "unclottable". The administration of protamine sulphate had been suggested as a method of treatment, but he had not found it of value in one case of similar hæmorrhage—accidental hæmorrhage in obstetrics.

Dr. Drevermann went on to say that when the circulation was disrupted by electrolyte loss it was important to return the blood pressure to normal as quickly as possible; such loss occurred in acute dilatation of the stomach, and in paralytic ileus. It should not be forgotten that in continuous intravenous therapy, other electrolytes than sodium and chloride ions were also lost. Due consideration had to be given to potassium bicarbonate and possibly calcium ions. The urinary output, of course, must be adequate before the administration of potassium was considered. The use of the Fantus test had been criticized recently. It was, however, a good prognostic test, in that the appearance of large amounts of the chloride ion in the urine during the post-operative period indicated that the bowel was recovering its function. In the administrtaion of protein in any form, it had to be remembered that sufficient dextrose must be given, in the form of 10% solution, to supply enough calories so that the protein would not be immediately deaminized.

J. F. MCCULLOCH (New South Wales), in his paper on "Resuscitation in Anæsthesia", stressed the importance of quantitative as opposed to qualitative standards in pre-operative assessment. He said that blood volume deficits of up to 50% had been found in patients suffering from chronic disease but showing few hæmatological abnormalities. The systolic blood pressure was an important guide to the patient's condition during operation. Hypotension might follow oligæmia, vasodilatation, or both. Blood transfusion and vasopressors both had a place in its treatment. In rare cases arterial transfusion might save a life. Cardiac arrest, whether from ventricular standstill or fibrillation, demanded immediate treatment for complete success. Anoxia, reflex vagal effects and myocardial intoxication were the important causal factors. Tracheal insufflation with 100% oxygen and cardiac compression through the thorax were essential. One millilitre of adrenaline (one in 1000) and nine millilitres of normal saline should be injected into the heart muscle, and the injection should be repeated in two minutes when asystole persisted. Ten millilitres of 1% calcium chloride solution should be injected if there was no response within two minutes. When fibrillation was present, 20 millilitres of 1% procaine solution should be injected intravenously and the dose repeated in two minutes. If that failed, three millilitres of the same solution should be injected into the heart. Electrical defibrillators of 1·5 to 2·5 amperage had been recommended by many American observers.

A. E. COATES (Victoria) said that the surgeon still had many things to do to help in resuscitation—for example, to perform laparotomy to stop bleeding. There was no advantage in transfusing more blood than the patient had lost. Protein bricks were built up slowly, and perhaps the body worked like some bricklayers. Dr. Coates gave a warning that surgeons should not delay in stopping bleed-

ing and relieving strangulation, and said that they should not rely entirely on resuscitation.

F. H. Mills (New South Wales) said that cardiac massage was usually performed too late and inefficiently. In his opinion cardiac massage was essential if pulsation ceased in the aorta and if the patient's colour deteriorated. Under those circumstances the chest and pericardium should be opened, the incision in the pericardium being made above the phrenic nerve. The ventricles were then grasped in one hand and squeezed sixty times a minute. The coronary arteries might then be properly oxygenated, and if desired drugs might then be injected after the circulation had been restored. Dr. Mills said that if a drug was used he favoured calcium chloride in doses of 10 millilitres of a 10% solution.

C. W. Gale (Geelong, Victoria) referred to the danger of giving too much salt. He said that not quite as much as the salt lost should be given. He also mentioned that the salt content of the fluid aspirated from the stomach was less than that of normal saline. He pointed out that the wrong flask might be used; for example, dextrose in saline might be used instead of dextrose in water. He therefore recommended that adhesive tape be attached to the bottom of the flask, and the colour of the tape should indicate the type of fluid. He used red for sodium chloride, blue for glucose and green for Hartmann solution. He went on to say that protein deficiency might persist or appear many weeks after operation, at a time when the patient had lost his appetite. Theoretically protein-rich diet might be ordered, but this was often not practical. He suggested that when children were the patients the mothers might be allowed to feed them on oysters, steak and other appetizing protein-rich foods until the appetite was restored. The patients could then be fed on the so-called "correct" dietetic lines.

J. Devine (Victoria) said that the best estimate of salt requirements was one based on an accurate estimation of the salt lost, on the clinical condition and on other laboratory tests. He pointed out that patients should be carefully watched to ensure that they were receiving the treatment ordered, and referred to a patient who had had a colectomy, and who was given salt tablets, which he concealed because of a dislike for their taste.

J. A. James (New Zealand) considered that it was a slur on surgeons that active resuscitation units had arisen, but he agreed that they had a most important place.

Dr. Cuming, in reply, said that hyperventilation alkalosis was respiratory and metabolic in origin. He suggested that surgeons should leave the respiratory centre alone at the time of operation.

Dr. McCulloch, in reply, agreed with Dr. Mills as to the urgency of cardiac massage if the patient was to be saved and if he was not going to be a vegetable. He agreed about the need for opening the thorax.

Dr. Drevermann, in reply, said that he gave extra salt, as it had been found that the serum sodium and serum chloride levels fell below normal if this was not done. He pointed out that acute dilatation of the stomach might have resulted from a low chloride content of the body.

SECTION OF DERMATOLOGY AND SECTION OF RADIOLOGY AND RADIOTHERAPY.

Angiomata of the Skin.

A combined meeting of the Section of Dermatology and the Section of Radiology and Radiotherapy was held to discuss the subject of angiomata of the skin.

C. E. Eddy (Victoria) discussed in his paper the physical aspects of the radiation treatment of angiomata. He said that radiations of a number of types (X rays generated by different voltages, and β and γ rays from radioactive materials) all produced equivalent reactions in tissue. It was therefore possible to choose the radiation conditions so that the required dose was delivered to the diseased tissue with the minimum possible damage to nearby healthy structures. In the treatment of superficial angioma it was necessary to deliver an adequate dose throughout the thickness of the lesion with the minimum possible permanent damage to the skin. Particular care had also to be taken to prevent damage to underlying structures, such as cartilage and epiphyses, which in many cases lay quite superficially. Dr. Eddy compared the various beams of radiation available as to their relative physical effectiveness for lesions of different thicknesses. He also discussed the available data regarding the dosages which would produce damage to growing bones. He emphasized the necessity for the choice of the most satisfactory beam for a particular lesion to be on a sound physical basis.

F. C. Florance (New South Wales) discussed the value of treatment of angiomata. He said that they were tumours, vascular or lymphatic, the exact cause of which was unknown. A classification which had been given was as follows: (i) capillary nævus, (ii) cavernous nævus or strawberry nævus, (iii) rare type of single nature; (iv) lymphangioma, (v) stellate nævus, (vi) senile angioma or Campbell De Morgan spots. The statement had been made that the capillary nævus or port-wine stain was still considered to be resistant to existing treatments, and in fact interference was contraindicated unless the area was small and suitable for excision by the plastic surgeon. It had been postulated that the vast majority of strawberry nævi and cavernous nævi would spontaneously disappear by the time the patient was aged five years, even if they were not treated, except the rare type of single nature, which did not begin to involute at six to eight months, did not react to treatment and usually found its way to the surgeon at adolescence. However, treatment was advisable for psychological and cosmetic reasons: (i) From the psychological angle, it was wiser to hasten healing by treatment, before the child was conscious of the deformity, which might otherwise set in train various complexes; parents often voiced such fears as soon as the medical interview began. (ii) If a small hæmangioma was treated in the first few weeks of life, there was a big possibility that the treatment would rapidly inhibit growth and prevent the hæmangioma from becoming larger and more formidable. (iii) If a large hæmangioma, which had been seen early in life, was left untreated for spontaneous healing to occur, it might ulcerate by trauma and become infected, and more scarring and atrophy might be present in the final result than if resolution had been accelerated by treatment. In conclusion, Dr. Florance said that the opportunity to hasten resolution of such larger lesions with minimal doses of radiation therapy rapidly passed, since it was in the first three months of life that the angiomata were highly radiosensitive, and the radiosensitivity varied inversely with the age of the angioma.

R. Kaye Scott (Victoria) said that in the early years of radiation practice, capillary angiomata of babies had been treated with doses sufficient to cause rapid tumour regression with good immediate cosmetic effect. Doses of that order occasionally produced late deleterious effects on the normal tissues illustrated by growth restraint and late deformity, with scar due to hyalinization of connective tissues and consequent development of telangiectases. It was recognized that most angiomata of babies spontaneously retrogressed, but not all retrogressed completely. Then *angioma vineum* might result from hæmatin-staining of stroma, just as it was a sequela of *angioma flameum*. The angioma might grow during the first six months, and irradiation was indicated to prevent tumour-formation, to initiate regression and to avoid development of *angioma vineum*.

Dr. Scott went on to say that the angiomatous tissue was responsive to irradiation, firstly because of the "tissue sensitivity" of reticulo-endothelial tissue, secondly because of the increased sensitivity of dividing cells, a phenomenon known as "mitotic sensitivity", and thirdly because the tissues of infants were relatively more radiosensitive than corresponding adult tissues, a phenomenon known as "developmental sensitivity". Irradiation was employed in doses small enough to cause growth cessation. Tumour

destruction was not attempted; slow recession then occurred and was progressive over one to five years. Radium plates might be used for small shallow lesions, but in suberythemal doses only to avoid scar. X-ray therapy of quality appropriate to the tumour depth was more usually employed. A single dose of 400*r* might be repeated to a total of three doses in not less than three months; the patient was observed then for a further six months, and further treatment was given if regression was not progressive.

Dr. Scott said that lesions in the scalp were safely treated, as the dosage mentioned did not cause permanent epilation. Lesions on the face or skin so treated showed minimal radiation effects; occasionally temporary pigmentation might be seen, but no atrophic skin effects resulted. Lesions of large area received equivalent treatment if not lying over epiphyses. Angiomata showing sinusoid formation with tumefaction were treated with four doses of 200*r* in one week or six doses of 150*r* in two weeks to minimize risks of ulceration. Ulcerated lesions received minimal dosage and were not re-treated while ulceration persisted. Lesions overlying epiphyses or limb bones were treated by tangentially directed beams to avoid irradiation of bone. Extensive lesions of glove or stocking type had been treated with minimal dosage of X-ray therapy or cylindrical radium moulds, but risks to epiphyses were significant. Growing and massive tumefactions in very young infants required minimal dosage for tumour-growth restraint, and effects on normal tissues must be avoided. Angiomata involving the lip were treated with the alveoli protected; if the alveoli were involved minimal dosage was given to ensure growth restraint. Lesions on eyelids or in the orbit were treated under both local and general anæsthesia with lead shields placed in the conjunctival sac to protect the globe. Divided dosage was difficult when multiple anæsthetics were required. Rectal administration of "Pentothal" was advised for general anæsthesia. Angioma on the vulva or scrotum might be treated with radium plates; X-ray therapy was avoided if possible, as the testes must be protected.

A. R. WAKEFIELD (Victoria) presented a surgical approach to the treatment of hæmangioma. He said that he would limit his remarks to the vascular nævi which presented a subcutaneous mass as well as a discoloration of the surface skin. There were broadly four groups of these lesions considered in relation to treatment: (i) the small localized "strawberry" nævus not related to essential structures and well clear of underlying bone or cartilage; (ii) the same lesion in close relation to essential structures or in close contact with cartilage or bone; (iii) the larger, irregular, infiltrating angioma whose limitations were hard to define, but whose area was not so great as to prohibit treatment; (iv) the really massive lesion which involved, for example, the whole of the face or perhaps a whole limb or the shoulder girdle, and which defied treatment. After making a number of significant observations on the natural history and behaviour of the lesions, Dr. Wakefield went on to consider treatment. He said that, apart from massive lesions which were a physical encumbrance and might have some of the general effects on the circulation of an arterio-venous aneurysm, the objects of treatment were concerned only with appearance. They were to relieve existing disfigurement and to prevent possible further disfigurement. The embarrassment of parents must never be allowed to take precedence over a child's best interests. Dr. Wakefield considered indications for treatment according to the stage at which the lesion was first seen. If it was already established at a certain stage and growing only with the child, treatment was never urgent. A period of observation to assess rate of growth and behaviour was justifiable. Removal of lesions of group (i) was simple and uncomplicated and could be done at any time. Removal of lesions of groups (ii) and (iii) might be complicated; it was usually wiser to postpone treatment till the child was two or three years old. With lesions of group (iv) interference in the early years of life was never justified. If the lesion was seen earlier and was still increasing in size, active intervention depended on the situation. A lesion away from essential structures might well be left until the child was older, but if further increase in size would involve essential structures, intervention was usually indicated. In selection of a method of treatment certain things must be remembered: (*a*) the child's life must not be exposed to undue risk; (*b*) the viability of the skin of the area must not be prejudiced; (*c*) the growth and development of the part must not be interfered with; (*d*) the method must deal with the subcutaneous extension as well as the surface discoloration; (*e*) natural tendency to regression must not be confused with effects of treatment; (*f*) the cosmetic result must be such as to justify the method. Dr. Wakefield said that the surgical approach, rightly used, alone satisfied all those criteria. There were limitations to surgery, but only in those major anomalies which imposed similar limitations on all other methods; for example, ill-considered heroic attempts at treatment of group (iv) lesions had produced tragic results. In conclusion, Dr. Wakefield suggested that in all cases in which the surgeon might be called in at some stage of treatment, surgical treatment might well be adopted from the start.

R. C. E. BRODIE (Victoria) doubted that all cavernous angiomata disappeared without treatment. He considered that carbon dioxide snow was preferable to surgery in lesions in certain areas, such as on the female nipple. He asked Dr. Wakefield to discuss the surgical treatment of port-wine nævus.

R. R. WETTENHALL (Victoria) could not recall having seen one single tragedy resulting from the use of radiation therapy in the hands of Dr. Herman Lawrence and his colleagues. He considered that early radiation treatment was suitable in most cases, as there were few if any contraindications. He recommended the use of Grenz rays for port-wine stains.

D. OFFICER BROWN (New South Wales) appealed for cooperation between the surgeon, the dermatologist and the radiotherapist. He considered that the method of treatment did not matter a great deal in small isolated lesions that were not located near vital structures. He preferred the use of surgery in lesions around the eyes. He again appealed for further cooperation between the specialties.

DENIS CLARKE (Victoria) said that evidence of healing could often be noted in angiomata from the appearance of mottling and speckling in the lesions. When those signs appeared, treatment was not considered necessary.

A. BURROWS (Canberra) did not consider that use of thorium X was a satisfactory method of treatment in port-wine stains, as it often led to the development of telangiectases.

J. M. O'DONNELL (Western Australia) considered that sclerosing solutions were of some use in the treatment of isolated angiomata.

JOHN MAYO (South Australia) asked the meeting for information on large angiomatous lesions appearing late in life. He said that those lesions were frequently multiple, and he was of the opinion that X-ray therapy would benefit some of the patients.

H. M. TRETHOWAN (Western Australia) summed up by saying that there was a certain uniformity of opinion from all groups taking part in the discussion. He considered it reasonable that the smaller lesions should be referred to the dermatologist, and some of the larger lesions to the radiotherapist and plastic surgeons. He appealed for an amicable settlement of differences in determining the method of treatment.

Dr. Wakefield, in reply to the question about the surgical treatment of port-wine stains, said that he considered that, when the colour and other cosmetic features of the skin could be reproduced fairly accurately, it was justifiable to treat such lesions surgically, although it might still be necessary to use cosmetics to assist in the final effect. He said that he had had no personal experience of the use of sclerosing solutions, but he did not consider that the substitution of scar tissue for the angiomatous tissue was good in principle. He thought that such treatment might

be of assistance when it was to be followed subsequently by surgery.

Dr. Eddy said that thorium X was not available in Australia. He considered that the results obtained in other countries by the use of the radioactive substance P_{32}, which released β radiation, were no better than the results obtained by other radiation methods. He considered that strontium 90 might be helpful.

Dr. Kaye Scott discussed the case of a large angioma which arose on the tongue of an adult, and which responded to interstitial radiation therapy after surgery had been attempted; he considered that there was much value in each form of treatment.

SECTION OF MEDICINE, SECTION OF RADIOLOGY AND RADIOTHERAPY, AND SECTION OF SURGERY.

A COMBINED MEETING of the Section of Medicine, the Section of Radiology and Radiotherapy and the Section of Surgery was held to discuss (*a*) the management of thyrotoxicosis and (*b*) the management of the complications of peptic ulcer.

Management of Thyrotoxicosis.

KEITH D. FAIRLEY (Victoria) discussed the management of thyrotoxicosis, particularly from the medical viewpoint. He said that the treatment of the condition varied with the cause. It was found in association with the following conditions: (*a*) *thyrotoxicosis factitia*; (*b*) nodular goitre, with single or multiple nodules; (*c*) adenocarcinoma of the thyroid gland (rare); (*d*) malignant exophthalmos; (*e*) diffuse goitre. In cases of *thyrotoxicosis factitia*, intake of thyroid extract was stopped. Diuresis accelerated its excretion. In most toxic nodular goitres and in carcinoma, surgery was indicated. Radioiodine was second choice when surgery was contraindicated in the former case and was useful in the treatment of metastases capable of taking it up. Thyrotoxicosis accompanying malignant exophthalmos was best treated with iodine and antithyroid drugs, because their action was readily stopped should exophthalmos progress rapidly. The exophthalmos was treated by X-radiation of the orbits and the pituitary gland combined with administration of thyroid extract and œstrogens to inhibit production of thyrotropic hormone. Tarsorrhaphy and decompression of the orbit were sometimes necessary. Choice of treatment in diffuse toxic goitre lay between radioiodine, surgery and antithyroid drugs. Radioiodine was especially valuable for elderly patients, poor surgical "risks" and patients with post-operative recurrences and when toxic reactions prevented the use of antithyroid drugs. Difficulty in estimating dosage resulted in myxœdema. Skilled surgery gave rapid cure, but carried a slight mortality and risk of injury to recurrent laryngeal nerves and parathyroid glands. Operation might be contraindicated by complications, associated disease or lack of a competent surgeon. Medical treatment was prolonged, had a high rate of relapse and occasionally resulted in severe toxic effects. Contraindications were large goitres and obvious pressure effects. The drugs concerned were indicated in cases of small diffuse goitres with a short history, when hypothyroidism preceded the thyrotoxicosis, and for thyrotoxicosis complicating pregnancy. Iodothiouracil and "Tapazole" were useful recent additions to the drugs of the group.

F. F. RUNDLE (New South Wales), discussing the surgical treatment of thyrotoxicosis, referred to the various clinical types of thyrotoxicosis and said that treatment depended on the type with which the patient presented himself to the doctor. The central lesion in thyrotoxicosis was the hyperactive thyroid gland. The excess of thyroid hormone produced was responsible for the systemic manifestations and the characteristic complications, auricular fibrillation, thyrotoxic delirium, thyrotoxic myopathy and so on. Thiotherapy, radioiodine therapy and surgery acted only at the level of the thyroid gland, abolishing with more or less completeness and permanency its overproduction of hormone. Since they had as their common target the thyroid, these three methods might be termed anti-thyroid tools. The anti-thyroid tool chosen for individual patients should be that which promised to cope best with the patient's particular problem. In cases of classic Graves's disease, treatment should always embrace more than the thyroid, going back into the social, economic and psychological background of the patient and seeking readjustment of sources of stress. In the treatment of *thyrotoxicosis factitia* there was no place for surgery, and thyroidectomy was best avoided in the ophthalmic types of Graves's disease and in persistently recurrent types of goitres. In cases of nodular toxic goitre, thyroidectomy appeared in general to be the tool of choice. In classic Graves's disease the precise scope of the various antithyroid tools was more debatable. The position was that there was a choice of methods, all of which when skilfully used were highly effective, and it was clear that it was necessary to take into account the facilities available. All three methods had their advantages and disadvantages; Dr. Rundle gave the pros and cons of thyroidectomy. He said that a combination of uracil and iodine was used in the pre-operative preparation, the patient being restored to a euthyroid state and maintained there until she had recovered all her lost weight and strength. This preparation usually occupied four to six weeks, but the patient did not need to be admitted to hospital or to abandon her normal activities completely during this period. Dr. Rundle emphasized important points in the technique of thyroidectomy and mentioned the mortality, morbidity and complications of thyroidectomy. He said, however, that thyroid surgery, just like non-surgical treatment with its new agents, was advancing all the time. Compared with that of even ten years earlier, the technique of thyroidectomy was simpler and safer, and its morbidity had been greatly reduced.

W. P. HOLMAN (Victoria) described the place of I^{131} in the management of thyrotoxicosis as viewed by a group of workers from the Royal Melbourne Hospital. He mentioned possible errors in the method of estimating dosage and directed special attention to the need for avoiding premedication with antithyroid drugs and those containing organic or inorganic iodine for minimal periods before the carrying out of physical or biochemical tests for thyroid function. Dr. Holman described some precautions needed for safe handling of radioactive materials. He explained that so far only those patients presenting specially difficult clinical problems had been accepted. They were grouped as those with recurrences after surgery, those with severe progressive exophthalmos, advanced "thyro-cardiacs" and those with marked intolerance to antithyroid drugs. In general it was shown that patients with primary thyrotoxicosis presented a simpler problem for accurate and effective dosage than those suffering from conditions described as toxic nodular goitre. The disadvantages mentioned by Dr. Holman included those arising from the lag between dosage and full clinical effect of four to twelve weeks; but in those cases a progressive improvement had been noted in the earlier periods.

Dr. Holman referred to speculations about very late development of neoplasms in the thyroid and about possible genetic effects of the radiation. It was estimated that the maximal dosage of radiation received by the ovaries after an oral dosage of five millicuries of I^{131} would not exceed that during routine pelvimetry. Dr. Holman tabulated the results obtained in the treatment of a group of 13 patients. He stated that I^{131} was considered to be the treatment of choice in cases of primary thyrotoxicosis in the age group over forty years, and he thought that wider indications were likely to be accepted.

L. A. I. MAXWELL (Victoria) asked Dr. Rundle what in his experience was the relative incidence of smooth to

nodular toxic goitre. Sir Alan Newton gave the incidence of smooth toxic goitre as 24%, whereas Sir Hugh Poate put the figure at more than 40%. He asked also what Dr. Fairley considered to be the risk of carcinoma developing in nodular goitres treated with the thiouracil drugs. He agreed with Dr. Fairley regarding the use of iodine concurrently with the thiouracil drugs in the medical treatment of thyrotoxicosis.

P. GOODMAN (Victoria) asked Dr. Fairley if there was any specific period when toxicity from thiouracil drugs was most likely to be encountered.

J. E. CLARKE (Victoria) asked Dr. Rundle how he could tell that in a toxic nodular goitre the nodule and not the rest of the gland was responsible for the toxic manifestations.

R. WHISHAW (Tasmania) asked if cases of thyrotoxicosis occurred without any demonstrable enlargement of the gland observed clinically or radiologically.

D. MONK ADAMS (New South Wales) asked Dr. Holman if he considered the "atomic cocktail" as a treatment of choice in cases of malignant exophthalmos.

A. E. COATES (Victoria) said that although the operative mortality of thyroidectomy was now very low, deaths did occasionally occur in difficult cases from asphyxia due to recurrent laryngeal paralysis, and there was still a place for tracheotomy. For patients who had undergone previous thyroidectomy with damage to one recurrent laryngeal nerve and who required a second operation, he thought it advisable to perform tracheotomy at the time of the thyroidectomy.

L. E. HURLEY (Victoria) raised the question of routine blood count in the use of thiouracil drugs. He said that while it was true that agranulocytosis could develop "out of the blue", on the other hand the condition was sometimes detected in a routine blood count before the patient had developed symptoms. As those patients had a much better prognosis than others, he thought it still advisable to continue with periodic blood counts. He also said that in some patients treated with thiouracil he had found that great enlargement of the gland was a troublesome feature.

F. FAY (Tasmania) said that he believed that iodides administered alone ceased to have an effect after two or three weeks, but the speakers had told of their prolonged use with thiouracil, both as pre-operative preparation and in the medical management in cases of thyrotoxicosis. Was there any justification for that?

Dr. Fairley, in reply, said that American pathologists quoted high figures for the incidence of carcinoma in singular nodular goitres, but he had rarely encountered it in Australia. He considered that the risk of carcinoma developing was greater with a single nodule than with multiple nodular goitres. He said that at any time in the course of thiouracil treatment a blood dyscrasia might occur, but it was most likely to happen after the second week. With the dosage of methyl thiouracil which he employed he had not encountered any cases of agranulocytosis. In reply to Dr. Whishaw he said that the number of cases of thyrotoxicosis without goitre was very small indeed. If one suspected such a case, a therapeutic test with iodine was valuable.

Dr. Rundle, in reply, said that it was very difficult to state the relative incidence of smooth and nodular toxic goitres because of the difficulty of definition of those types. In his experience the majority of toxic goitres were of the smooth variety. The diagnosis of carcinoma of the thyroid on histological criteria was often difficult, and expert pathologists not infrequently differed. In pre-operative preparation he gave iodine and thiouracil simultaneously, because he believed that the iodine potentiated the action of the thiouracil. He said that it had been shown that iodine went on acting for a period much longer than three weeks. He was grateful to Dr. Coates for raising the question of tracheotomy, because asphyxia was now almost the only cause of post-operative death, and tracheotomy was life-saving.

Dr. Holman, in reply, said that he could not say whether radioactive iodine was the treatment of choice for malignant exophthalmos, as he had as yet no clear idea of the natural history of that condition.

Management of the Complications of Peptic Ulcer.

F. AVERY JONES (United Kingdom) discussed the medical aspects of the management of complications of peptic ulcer.

SIR GORDON GORDON-TAYLOR (United Kingdom) discussed the surgical aspects of the subject. He reviewed the development of opinion on the place of surgery in the management of bleeding peptic ulcer, pointing out that at the present day, although the golden era of cure of every ulcer by non-operative means had not dawned, the physician and surgeon were a loyal team. Outlining treatment, Sir Gordon Gordon-Taylor said that in every case of hæmatemesis or melæna, immediate steps should be taken to ensure that a sufficiency of suitable blood was readily available. If bleeding was more than slight, as indicated by a pulse rate of or greater than 100 per minute and a hæmoglobin value in the region of 60%, a drip-transfusion should be advised. Every patient with hæmatemesis should be transferred to a fully organized and equipped institution, especially if the hæmorrhage might be coming from a gastric or duodenal ulcer; the exsanguinated patient could be removed with the drip-transfusion running. There must be early consultation between physician and surgeon. Sir Gordon Gordon-Taylor listed the following indications for operation: (i) recurrent hæmorrhage in a patient over fifty years of age known to have a chronic gastric or duodenal ulcer which had bled before; (ii) recurrence of bleeding or its continuance on the second day in such a patient under expert treatment in an institution; (iii) recurrent or persistent bleeding after admission to hospital of a patient with hæmatemesis or melæna but little or no ulcer dyspepsia. Patients with simultaneous or consecutive hæmorrhage and acute perforation should be considered for emergency partial gastrectomy. For patients with evidence of pyloric stenosis or mid-gastric narrowing, operation should be considered before further bleeding occurred, but if possible a suitable interval should be allowed for restoring the body fluids and electrolytes. Patients who had previously undergone gastro-enterostomy or gastrectomy constituted a special problem; for many the mortality was low with medical treatment because the condition was an acute lesion of the stomach or jejunum rather than a penetrating ulcer, but if there was much pain or an ulcer crater had been demonstrated they should be treated as for any other chronic ulcer. Sir Gordon Gordon-Taylor emphasized that every case must be considered on its merits; the decision on its management depended on all the factors relating to the patient and the available surgical attention. He listed a number of complications that increased the surgical risk and went on to discuss the time factor in relation to the interval between onset of hæmorrhage and surgical interference as well as the duration of the necessary operative procedure. He said that early operation for ulcer hæmorrhage, as for perforation, still held out the highest hope in cases in which surgery was indicated, but recovery was possible from operations performed much later than the first forty-eight hours. Another factor influencing the decision to advise surgery and also the result was the dexterity and speed of the surgeon. For anæsthesia in cases of hæmorrhage, Sir Gordon Gordon-Taylor said that he always used regional and splanchnic anæsthesia. He described the various forms of surgery that might be used in particular circumstances and pointed out that no one technique was appropriate for every case for which operation had been judged necessary; the object of surgery was to arrest hæmorrhage.

Turning to the treatment of perforated peptic ulcer, Sir Gordon Gordon-Taylor spoke of the decline in the associated mortality from 50% at the beginning of the century to a very small present-day figure. Factors in

the decline were reduction in the "time-lag" between catastrophe and operation, advances in anæsthesia and the introduction of antibiotics. Sir Gordon Gordon-Taylor said that he had little personal experience of primary gastrectomy for perforation, but it should be performed in cases of chronic or recurrent ulcer with perforation and in cases with a short history of dyspepsia if (*a*) there had been previous perforation, (*b*) hæmorrhage accompanied the perforation, (*c*) the perforation was gastric, (*d*) operation findings indicated that a duodenal ulcer was of chronic type. He went on to say that although surgical treatment was now usually preferred, conservative measures were indicated when (*a*) diagnosis was in doubt between perforation and a condition in which operation would be contraindicated, (*b*) the patient's condition made operation inadvisable, (*c*) signs were indefinite and a large perforation with much soiling of the peritoneal cavity was improbable, (*d*) good surgical facilities were not immediately available. In conclusion, Sir Gordon Gordon-Taylor gave a strong warning against gastrectomy in women, unless there was a suspicion of malignant change or gastrectomy appeared to be the safest procedure in a particular case; the latter he described as a rare contingency.

JOHN O'SULLIVAN (Victoria) discussed the radiological aspects of the subject. Dealing first with the œsophagus, he said that superficial ulceration of the œsophagus resulting from the action of acid gastric pepsin on its mucosa was an early development in cases of reflux œsophagitis. He emphasized its association with hiatal herniation and mentioned the presence of areas of gastric mucosa as an alternative ætiological basis. He referred to the anatomy and radiological appearances of hiatal herniation, in view of its importance as an indicator of the probable presence of backflow from the stomach, reflux œsophagitis and superficial ulceration of the œsophagus. The value of posture in elicitation of reflux was shown. Dr. O'Sullivan described the later complications of fibrosis, with organic obstruction and deep ulceration going on at times to perforation, together with their differential diagnosis. He stressed the importance of œsophagoscopy as a very important diagnostic procedure. Dealing with complications in ulceration of the stomach and duodenum, Dr. O'Sullivan referred first to hæmorrhage. He said that when hæmorrhage was acute and very severe, radiological examination was employed only if the past history and clinical features were not definitely indicative of ulceration. Its employment in certain cases might be very informative, as in the exclusion of varix-formation in the fundus of the stomach and in the œsophagus. The examination was an emergency one and should be carried out with the greatest consideration of the patient's condition. When the circumstances permitted, the radiological examination should be deferred until the patient was ambulant. The next complication mentioned was perforation. Dr. O'Sullivan said that in acute cases a gas shadow was often demonstrated under the dome of the diaphragm. Subphrenic abscess was indicated and localized by means of fluid level. Ileus was indicated by dilated bowel coils. In subacute and chronic cases fluid levels and gas bubbles above them indicated a localized perforation. Dr. O'Sullivan also referred to perforation into other organs, such as the pancreas, liver and biliary tract. He then went on to discuss organic deformities of the stomach and duodenum resulting from the fibrosis associated with chronic ulceration, and described and illustrated such conditions as organic hour-glass stomach, pyloric stenosis, spiral rolling-up of the lesser curvature of the stomach and scarring of the duodenum, with pouch formation and stenosis. The question of the differentiation between benign and malignant ulceration was considered from the radiological viewpoint. Finally Dr. O'Sullivan mentioned the complications of operative procedures on the stomach and discussed examples of obstruction and ulceration in the stoma and in the jejunal loop, of gastrocolic fistula, and of the swelling of the mucous membrane found after some cases of gastro-enterostomy.

IAN WOOD (Victoria) said that every endeavour was being made in Melbourne to ensure cooperation between physicians and surgeons in treatment of patients who were suffering from hæmatemesis due to peptic ulceration, as suggested by Sir Gordon Gordon-Taylor. Dr. Wood asked what steps the surgeon should take at laparotomy for severe hæmatemeses in a patient in whom the results of gastroscopic examination had been negative and in whom no abnormality was found on external examination of the stomach or duodenum.

I. S. EPSTEIN (Victoria) asked what place direct transfusion now had in the treatment of hæmatemeses.

K. H. HALLAM (Victoria) asked if a chronic penetrating peptic ulcer ever healed completely.

J. G. HAYDEN (Victoria) asked what was the present surgical treatment for an elderly patient in good condition who was suffering from pyloric obstruction due to a chronic ulcer.

L. HURLEY (Victoria) asked what was the attitude to the treatment of recurrent bleeding when the lesion was of the acute type.

B. A. BAKER (Victoria) asked if reflux œsophagitis ever occurred with normal radiological findings.

Dr. Avery Jones, in reply, said that he had only twice tried direct transfusions, but he was not convinced they were superior to citrate transfusions unless a considerable amount of blood was required. Under those circumstances the infusion of a large amount of citrate might result in further bleeding. If mass transfusions were necessary with citrated blood, he would leave a six-hour to eight-hour gap before operation if that was possible. He also stated that chronic penetrating posterior ulcers did heal, and that this might often be demonstrated *post mortem*. He pointed out that the natural history of an ulcer was that healing occurred at intervals, but that the intervals became longer and eventually healing did not occur. The time for gastrectomy had often arrived when that state of affairs was attained. However, economic and other factors might of course influence the decision to operate before that time. If bleeding recurred in an elderly patient in good condition from an acute peptic ulcer, operation was sometimes required whether or not the ulcer was visible on gastroscopic examination. At laparotomy something which felt like a small lead shot might be palpable. That something, which was the ulcer and surrounding inflamed tissues, should be removed by a submucosal resection. The small wound was closed with a stitch on the mucosal aspect. Dr. Avery Jones said that he especially supported that procedure in women, in whom it was very rarely necessary to perform a blind gastrectomy. In men, however, the acute ulcer was less often found, and a blind gastrectomy might be required for severe and recurrent bleeding.

Sir Gordon Gordon-Taylor, in reply, said that if the ulcer was not visible on the external aspect of the stomach he would open both the viscera concerned and look for it. He stated that he was in favour of direct blood transfusion, because the blood probably retained its hæmostatic qualities. He mentioned that he had used the Kimpton-Brown tube nearly forty years previously and that he had written the article on blood transfusion in the official history of the 1914-1918 war. He went on to say that he considered the pendulum had swung too far from gastro-enterostomy, even though he had been one of the first in Great Britain to recommend the more widespread adoption of gastrectomy. For the patient with duodenal or pyloric stenosis who was old and frail, he would certainly recommend gastro-enterostomy in women and in most men. In the latter, however, he would be guided by the general condition and would occasionally advise gastrectomy.

Dr. O'Sullivan, in reply to Dr. Baker, said that it was often very difficult to demonstrate œsophageal reflux even after prolonged examination. The patient was encouraged to strain, to lie on his back with knees extended and neck flexed, and films were taken with the patient in other positions. Even if the radiologist did not demonstrate reflux œsophagitis it might still exist. Dr. O'Sullivan considered that the use of a flexible endoscope might show evidence of reflux in patients in whom there was no radiological abnormality, but in whom the symptoms were suggestive of œsophagitis.

SECTION OF OBSTETRICS AND GYNÆCOLOGY AND SECTION OF PÆDIATRICS.

Prematurity.

A COMBINED MEETING of the Section of Obstetrics and Gynæcology and the Section of Pædiatrics was held. The meeting took the form of a symposium on "Prematurity".

W. F. JOYNT (South Australia) discussed the indications and necessity for premature induction of labour. He said that surgical induction of labour was never an entirely safe procedure for either mother or baby, so that it should not be performed unless the indications were definite. In his own series of 405 surgical inductions there had been four maternal deaths. The baby, to have a reasonable chance of survival, must weigh approximately four pounds. That weight was attained about the thirty-sixth week. If the interests of the baby were to be considered, induction was seldom justified until after that period of pregnancy, but the immediate and remote risks to the mother might necessitate earlier induction, particularly in cases of pregnancy toxæmia, in which the interests of mother and child were often diametrically opposed. In Dr. Joynt's series, 62% of surgical inductions had been performed for pregnancy toxæmia. He said that pregnancy complicated by *diabetes mellitus* should never be allowed to go to full term, as intrauterine death of the fœtus was common during the last three or four weeks. The method of termination by surgical induction or Cæsarean section was debatable. Dr. Joynt's preference, provided there was no added obstetric complication, was induction of labour. The place of surgical induction in the management of rhesus incompatibility with a sensitized mother was under debate. Dr. Joynt's feeling had been that if the titre of albumin agglutinin was rising and the pregnancy had reached the thirty-seventh week, the baby was better out of the uterus. The statement that in that type of case the babies would die whatever treatment was adopted was not justified by experience. In the treatment of ante-partum hæmorrhage the results of surgical induction of labour were so disastrous for the baby that it was seldom warranted if the baby had reached a reasonable size when active treatment became necessary. In the treatment of cephalo-pelvic disproportion, surgical induction had little or no place. In conclusion, Dr. Joynt said that the prognosis for the premature infant was improved by certain general principles in the conduct of labour, but its ultimate chance of survival depended on the skill of the pædiatrician and the nursing staff and the equipment at their disposal.

MARY HESELTINE (New South Wales) discussed the lesions found in the post-mortem examinations of 450 premature babies at the King George V Hospital for Mothers and Babies over the previous nine years. She pointed out that in the examination of subjects weighing 2500 grammes or less, in only approximately 60% could a satisfactory diagnosis of the cause of death be made. When microscopic or macroscopic abnormality was found, the four common findings in order of frequency were those due to anoxæmia, intracranial hæmorrhage, malformations and infection. The handicaps besetting the premature baby were in two groups: the first had to do with the underlying cause of the mother's premature labour and the hazards of labour and birth, the second with the immaturity of the alveolar structure of the baby's lung, the poorly developed reflexes of the immature nervous system, and the state of the capillary vessels with resulting hæmorrhage, reflecting the immaturity of the vascular bed. The condition of the lungs was important in relation to eventual survival; the accent of the pattern of the immature lung was on the increased amount of connective tissue between the alveoli and the poor accessibility of the capillary vessels for the exchange of their gases. A number of premature babies might develop a thick membrane in the lungs, called hyaline membrane or vernix membrane; it was uncommon in babies weighing over 2500 grammes and seemed to be associated rather with immaturity than with environment. Inflammatory changes might appear later. Intrauterine pneumonia and insufflational pneumonia were uncommon. Ventricular hæmorrhages occurred frequently in babies weighing 2500 grammes or less, but only in those which survived for a period varying up to several weeks. In such a case cyanotic attacks often occurred suddenly in a baby otherwise well. The hæmorrhage had been ascribed to the thinness of the vessel wall, to the immaturity of its structure and to the effects of anoxia. Subdural hæmorrhage was not common. Subarachnoid hæmorrhage sometimes appeared to be associated with other signs of anoxia. Many malformed fœtuses were born prematurely, the majority being in the 2000 to 2500 gramme group. The central nervous system was most commonly affected. Many malformations were incompatible with extrauterine life; others were discovered only after the first or second day of life. Hæmolytic disease of the newborn seldom caused spontaneous premature birth and subsequent death; when it did occur it followed the birth of other affected children. In some cases of *hydrops fœtalis* birth was premature. Dr. Heseltine said that the mortality from infection among premature babies had in her experience been low. The commonest infection was pneumonia; meningitis, general peritonitis and septicæmia accounted for the remaining deaths from infection. No death from gastro-enteritis had occurred. Two cases of meningitis were due to *Bacillus coli communis*; in the third the meningococcus was responsible. In many small premature babies much fluid was present in the subdural and subarachnoid space; no other abnormality might be found. Dr. Heseltine, in conclusion, said that in nearly 40% of cases no anatomical explanation of the cause of death could be made; many of the subjects were not in the "previable" group. It was impossible to assess the immaturity of the child's metabolism, and often the pathologist could find no reason for the death of the premature baby of about 1800 grammes in weight who languished and died even after weeks of vigorous existence. She suggested that when no satisfactory cause of death could be established, the fact should be recorded on the death certificate, and that the general term "prematurity" should not be substituted.

W. JOHN LONG (Victoria) read a paper on the home treatment of premature babies. He said that if a premature baby was born at home it should be nursed there for a few days. Rest and warmth were the only normal requirements of the baby during its first twenty-four or forty-eight hours. After a premature birth in the home, if the baby was wrapped in cotton wool and covered with a blanket, and if a hot-water bottle was placed near its back, it would not be chilled. As long as it was using the placental circulation, haste was not necessary. It might take ten minutes for respiration to become established; during the delay the airway should be kept clear. The cord should never be tied until it had stopped pulsating. If the baby's cot was not ready, use could be made of the mother's warmth to keep the child warm. A cot could readily be improvised. If the kitchen was not suitable, the cot was best left in the mother's room, which should be kept warm. Electricity was unreliable, but any constant source of heat would do, even a hurricane lamp. Hot-water bottles could be used as an adjunct; if they were the sole source of heat they should be draped round the outside of the cot under a blanket and refilled in rotation. The necessary degree of humidity could be achieved by hanging up a damp sheet or towel or drying the napkins in the room, if a boiling kettle was not convenient. Dr. Long said that the child should not be moved to hospital for twenty-four hours, unless home conditions were bad. Respiratory and cardiac distress were the only indications for interference during that period. The best stimulant was 0·5 millilitre of weak lobeline solution injected into the deltoid muscle. "Coramine" could also be given in similar quantity. Oxygen was ideal; but cyanotic attacks could be treated by placing a piece of cotton-wool moistened with whisky or brandy near the baby's face, or adding a few drops of brandy to any fluids given. The baby should be handled as little as possible, and with great gentleness and care. When handling was required, the baby should be turned from one side to the other, to give both lungs a chance to expand. Often the original cotton-wool wrapping need not be changed for the first day or so; soiled portions

were then replaced by clean wool. Later other parts could be cleansed with warm olive oil on cotton-wool swabs. Eventually the vernix with the cotton-wool would drop off spontaneously, and the baby's skin would be left in good condition. After forty-eight hours, if feeding by gavage became necessary, the baby would do better in hospital; but if it could obviously swallow its food, it might be expected to survive at home. For feeding purposes the head of the cot was raised, and the baby was turned to the right; food was offered every two hours, except during the night. Small quantities only were necessary. No feeding should take longer than fifteen minutes, and about half an hour later the baby was turned on its left side and the head of the cot was lowered. When it could suck it was fed from a bottle; until then an eye dropper was used. A good mixture to start with was half a teaspoonful of common salt and two tablespoonfuls of white sugar dissolved in a pint of boiling water. When this was taken freely, expressed breast milk was given or a mixture consisting of a teaspoonful of sweetened condensed milk in four tablespoonfuls of water. After the third or fourth day the ordinary hospital routine could be adopted. In conclusion, Dr. Long stressed three points: (i) During the first two days, if too much liquid was forced into the baby it would regurgitate it and probably drown itself. (ii) If the baby was handled too much the first day it would be too tired to live for the second day's struggle. (iii) If the baby was allowed to grow cold it was usually a waste of time warming it up. If those three points were remembered the baby had every chance of surviving.

KATHLEEN WINNING (New South Wales) discussed the management of the premature baby in hospital under the following headings: (*a*) the maintenance of body heat together with careful and minimal handling; (*b*) feeding; (*c*) the prevention of infection. Dr. Winning discussed in turn the premature ward, incubators, cots, clothes, oxygen administration, methods of feeding, food, the prevention of infection, and vitamin and iron requirements. She quoted the following statement issued by a conference of the World Health Organization in May, 1950:

> In establishing a premature infant hospital unit the first and most important requirement is the provision of qualified personnel to care for the infants. There should be at least one qualified physician, preferably a pædiatrician, with experience in the care of newborn infants; at least one qualified nurse with special training in the care of premature infants to supervise the nursing personnel in the unit, and sufficient additional personnel to ensure adequate care for the infants at all times, day and night. Skilled nursing care and experienced clinicians provided with the minimum of equipment will save more premature infants than less skilled professional personnel with every modern type of equipment at their disposal.

For purposes of comparison of the results of the care of premature babies in different countries, Dr. Winning recommended a uniform method for the presentation of facts and she showed charts by which this might be achieved.

KATE CAMPBELL (Victoria), in her paper on prognosis and end results, endeavoured to answer the question: "What happens to the premature baby?" She said that she had tried to answer the question by analysis of replies to *questionnaires* supplemented by information from cards in follow-up clinics. The material had consisted of 236 cases comprising 110 male babies and 126 females, of whom 71 had been examined in private practice and 165 in public hospitals. The survey had extended to the age of five years, with a few children over that age. The children had been divided into groups as follows: Group I, birth weight two pounds to two pounds 15 ounces, 46 cases; Group II, birth weight three pounds to three pounds 15 ounces, 77 cases; Group III, birth weight four pounds to four pounds 15 ounces, 60 cases; and Group IV, birth weight five pounds to five pounds eight ounces, 53 cases. In 153 cases some maternal complication in pregnancy or parturition had been present; 83 cases were uncomplicated. Dr. Campbell pointed out that while the number of cases and the method of collecting data were too unreliable to constitute the basis of a scientific investigation, she thought that a certain over-all clinical picture was produced. She set the results out as far as possible in the form of graphs to make presentation easier. Conclusions were as follows: (i) Premature infants caught up to full-time weight earlier than had been generally thought. (ii) The incidence of backwardness (5% in the series) was greater than among normal children. (iii) A large number of premature babies were of very small birth weight and were late in talking. (iv) Premature girls exhibited more behaviour problems than premature boys. (v) The influence of complications of labour from the subsequent development suggested a little higher rate of mental retardation and behaviour problems. (vi) The incidence of defects in premature children was greatly in excess of that in full-time children. Ocular defects were the most common, and the highest incidence of defects was found among children with the smallest birth weight. (vii) Prematurity did not predispose the child to subsequent illnesses.

D. F. LAWSON (Victoria) opened the discussion by saying that prematurity was nowadays the captain of the men of death. The problem was how to avoid it. He considered that it made all the difference to the baby whether induction of premature labour for toxæmia was carried out at thirty-four or at thirty-eight weeks; the pregnancy should be continued for as long as was compatible with the mother's interests. The use of hexamethonium preparations in hypertension had enabled the pregnancy to be carried on longer. Even a conservative attitude to prolonged pregnancy in cases of *placenta prævia* was justifiable in view of McCaffey's work, which showed that the first hæmorrhage was seldom dangerous and not in itself an indication for induction. It was probable that maternal malnutrition played an important part in the unexplained premature births so frequently encountered. Preliminary work in which folic acid deficiency was used as a detector seemed to suggest this.

NORMAN CUNNINGHAM (New South Wales) agreed with Dr. Joynt in his advocacy of the use of forceps for the delivery of premature babies. At King George V Hospital for Mothers and Babies in Sydney the staff had resolved two years earlier to use forceps in every alternate case of premature delivery. Now, as a result of experience so gained, they were using forceps in all cases. The forceps were applied gently and acted as a cage; there was no traction, but their presence meant that pressure was taken on the sides of the baby's head and not over the vertex. Dr. Cunningham criticized the use of a pipette for the feeding of small premature babies, and agreed with Dr. Winning that a catheter passed over the tongue was much better. The technique of gavage should be mastered by all medical students and passed on by them to nurses who handled babies in their care. Aspiration before the feed was given was a good test for overfeeding, which to babies aged under three weeks was much more harmful than under-feeding. Referring to retrolental fibroplasia, Dr. Cunningham said that the cause was still unknown. Dr. Algernon Reese, a world authority, had admitted recently that all theories so far put forward were unsatisfactory. They used a good deal of oxygen at King George V Hospital without harmful results. There might be some association between retrolental fibroplasia and congenital nævi. Dr. Cunningham considered "Humidicribs" to be of great value; he said that they saved occasional babies unlikely to survive by other means. He would ask Dr. Winning whether thyroid extract had a place in treatment. Sir Allen Moncrieff regarded it as most important, and said that thyroid extract was the only safe stimulant for premature babies.

Dr. Cunningham took exception to Dr. Heseltine's suggestion that the statement "no satisfactory cause of death" should be written on death certificates in place of "prematurity" when the post-mortem examination revealed no abnormality. He saw no reason why prematurity in itself was not a satisfactory cause of death.

F. J. BROWNE (New South Wales) agreed with Dr. Cunningham that forceps should be applied to every pre-

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mature baby if the head was in any way delayed on the perineum. No general anæsthesia and no sedation should be given and an episiotomy should always be performed. Forceps should never be applied till one was sure the head was lying in the antero-posterior diameter. In his experience intraventricular hæmorrhage was very frequent in premature babies; he thought it resulted from asphyxia, the prevention of which was extremely important. He himself regarded thyroid extract as indispensable for sleepy premature babies; he gave one-tenth of a grain twice a day. He agreed with Dr. Cunningham on that point. Professor Browne was not convinced, on the other hand, that humidified nurseries were essential. He went on to say that at University College Hospital during the bombing of London premature babies were nursed under bad conditions, in the dark, in the hospital basement, with relatively small numbers of nurses and without pædiatricians; they had to be left alone a great deal, were seldom bathed, were not weighed and did not have their temperatures taken, and yet the mortality rate was only 8%. After the war, when they returned to their proper nurseries and the pædiatricians returned, the mortality rate rose to 18% and had remained at that figure. In conclusion Professor Browne said that induction of labour should always be delayed till the end of the thirty-seventh week if this was in any way possible, and that the time should be carefully estimated at 259 days from the first day of the last menstrual period.

Robert Southby (Victoria) said that he wished to confirm Dr. Heseltine's statement about the frequency of *Bacillus coli* infection in the newborn. He considered that the low incidence of death from infection which she had quoted was a tribute to the care shown in her hospital. He agreed with Dr. Long that it was essential not to transport premature babies within the first twenty-four hours. He pleaded that the rather larger premature baby should not be neglected and finally asked Dr. Winning what her procedure was with regard to the washing of hands and the wearing of masks.

F. W. Arden (Queensland) said that it was not always realized that overheating could be as great a menace to the premature baby as underheating. There was a tendency to wrap premature babies up too much because they were small. In the previous summer he had examined a small baby alleged to have collapsed; the baby was very well wrapped up, and the rectal temperature was 106° F. In his opinion tube feeding was essential, not only for those babies who could not swallow or suck, but also for those who failed to suck their full requirements because of fatigue. Such babies did not thrive because they were being inadequately fed and might need alternate tube and bottle feeds.

Ellen Kent Hughes (Armidale, New South Wales) said that in her practice she did not wash any premature babies at all, except for necessary treatment of the buttocks. Since she had started that practice the babies had done well and there had been no skin infections. She always crushed the cord with forceps and cut it off flush at the end of twelve hours. She performed her inductions of labour simply with a steel knitting needle and had found the procedure most satisfactory.

M. T. Cockburn (South Australia) said that he did not think there was any chance of a catheter entering the larynx if it was introduced over the back of the baby's tongue, in spite of what Dr. Winning had said and what was quoted in books. He regarded the presence of œdema in a newborn baby as a warning signal not to begin fluid administration, and in any case he preferred not to add sodium chloride to fluids that were given. He liked to prescribe an iron mixture from the third week or so onwards, although it was probable that iron was of little value to the baby at that stage. In all his experience in Adelaide he had never seen a case of retrolental fibroplasia.

Dr. Winning, in reply, said that she saw no sound physiological basis for prescribing thyroid and did not see why babies should not be drowsy; in any case they did well without it. Her mortality rate was well over 8%, but there might have been some difference in the way in which the statistics were calculated. Many of the smallest infants, although technically "live births", were not viable. In reply to Dr. Southby, Dr. Winning said that they used simply soap, running water and paper towels before entering the premature nursery. She did not consider the wearing of masks to be essential; they tended to be handled by their wearers, so that the hands became infected. Since masks had been eliminated from her hospital there had been no rise in respiratory infections.

Dr. Campbell, in reply, said that their cases of retrolental fibroplasia in Melbourne had started to occur at the time when they introduced a special type of oxygen cot capable of giving a 60% to 80% concentration of oxygen. At that time also they were using oxygen prophylactically and giving it continuously to the smaller babies. In the last two years, since they had started giving oxygen symptomatically, there had been no further cases of retrolental fibroplasia. She used to give thyroid until a few years previously, but had found that it made no difference since she had ceased using it.

Dr. Heseltine, in reply, agreed with Professor Browne that ventricular hæmorrhage in the first few days of life was probably the result of anoxia, but said that it was harder to explain its causation in babies who lived until the third week.

Dr. Joynt, in reply, said that he agreed with other speakers that it was best to use forceps not to extract but to guide. He felt sure that premature babies handled in that way did better.

Dr. Long, in reply, said that he thought pipette feeding was essential in the home during the first few days. It was too easy to give an excess of fluid with a catheter, and that might result in aspiration and drowning of the baby.

SECTION OF ORTHOPÆDICS AND PHYSICAL MEDICINE AND SECTION OF RADIOLOGY AND RADIOTHERAPY.

Demonstration of Orthopædic Procedures with X-Ray Control.

A combined meeting of the Section of Orthopædics and Physical Medicine and the Section of Radiology and Radiotherapy was held. Gwynne Villiers (Victoria) and John Jens (Victoria) gave a demonstration of orthopædic procedures with X-ray control.

J. B. McMiken (Victoria) asked Dr. Jens whether he could indicate how often in radiological examination of the lumbar vertebræ one should carry out further X-ray examinations, such as the taking of oblique bending and lateral views.

Dr. Jens replied that if these views were taken as a routine procedure, the cost and time would be prohibitive. The extra views should be taken only if the ordinary views revealed no abnormality.

J. O'Sullivan (Victoria), supported by H. A. McCoy (South Australia), suggested that thought should be given to approaching the Government in an effort to obtain part payment of the fees for radiological investigation.

J. B. Colquhoun (Victoria) said that he had carried out extensive air arthrographic examinations of the knee joint, and had come to the conclusion that a good clinician could make an accurate diagnosis in 95% of cases without the aid of air arthrography. He suggested that in cases of painful back, probably only a similar percentage of patients needed further X-ray views.

H. R. Sear (New South Wales) urged that clinicians should not ask for a complete examination of the whole spine, as the cost to the patient was prohibitive.

D. G. Maitland (New South Wales) suggested that a request to the Government for part payment of X-ray

examinations would be a very serious step and should be given much thought.

J. J. Woodward (Victoria) said that he considered that in disk lesions X-ray examination was only a secondary consideration in diagnosis, and should be looked upon as a valuable adjunct.

SECTION OF OBSTETRICS AND GYNÆCOLOGY AND SECTION OF RADIOLOGY AND RADIOTHERAPY.

Pelvimetry: Analysis of 1000 Cases.

A combined meeting of the Section of Obstetrics and Gynæcology and the Section of Radiology and Radiotherapy was held to discuss the subject of pelvimetry.

Colin Macdonald (Victoria) presented an analysis of 1000 complete X-ray pelvimetries. He said that he had been able to correlate obstetrical results with the pelvimetric findings in 586 cases. Amongst the objects for his undertaking the investigations were: (i) to find the limits of normality of all pelvic diameters in those Victorian women who presented for pelvimetry, (ii) to find the percentage of the various pelvic types, for example, android, anthropoid, in those women, and how the type of pelvis influenced labour, (iii) to find the percentage of mid-pelvic and of outlet contractions in the women, and as a development of that to ascertain whether contractions demonstrated radiologically, if not clinically, of mid-pelvis or outlet affected adversely the course of labour. Dr. Macdonald emphasized that the 1000 cases were not unselected, and also that statistics drawn therefrom had not only distinct limitations, but should be subjected to special scrutiny. When the pelvimetry showed all diameters to be at or above the average range, one important obstetrical doubt had been resolved, and perhaps pelvimetry served its least questionable function when it demonstrated that a pelvis, previously under suspicion, was quite normal as to size and shape. Concerning the forecasting of dystocia from X-ray internal pelvimetry, he suggested that obstetrical optimism, rather than pessimism, should prevail, because it was possible to have a normal labour with diameters considerably below the average. In the present series, the type of pelvis most prone to abnormal labour was the android, followed by the platypelloid. Dr. Macdonald said that, in summary, his pelvimetric analysis tended to show, first of all, that when the inlet was small, the obstetrical outlook was more favourable if the mid-pelvis and outlet were within normal pelvimetric limits, and secondly, that when the inlet was normal, a mid-pelvis and/or outlet dimension shown by X-ray examination to be 0·75 to 1·0 centimetre below the average, could adversely affect the course of labour. He was led to the conclusion that limited pelvimetry, such as that provided by measurement of the inlet above, was not sufficient, believing that the pelvis should be measured in all three planes, inlet, mid-pelvis and outlet.

D. G. Maitland (New South Wales) opened the discussion. He said that in 1934 he had commenced work at The Women's Hospital, Crown Street, Sydney, in the first radiographic department to be established in an obstetrical hospital in New South Wales, and pelvimetry by Thom's method had a modest beginning with 25 cases in the first complete year of work. Many senior obstetricians then were loath to accept the new clinical aid, but, as method and technique were modified and improved, its importance became recognized. In the year 1946-1947, 1135 pelvimetries were carried out at the King George V Memorial Hospital for Mothers and Babies and 543 at The Women's Hospital, Sydney. Altogether, 8759 pelvimetries had been carried out from the inception of the X-ray departments of the two hospitals to June 30, 1952. Dr. Maitland said that a Frankenstein monster had not been created; in most cases obstetrical doubt about a possibly inadequate pelvis had been removed by a simple yet efficient and economical technical approach. Many suspected cases of disproportion proved to be cases of unrecognized occipito-posterior position or sacro-coccygeal fusion and flexion; the simple two-film modified technique of Chassar-Moir would allay obstetrical qualms in the majority of cases. It was important that the bladder and bowels should be empty. In certain cases, of course, additional radiographic mensuration was needed, and an inlet view and a subpubic arch view after the method of Chassar and Lapine might be essential to demonstrate, if possible, any compensating factors for an obvious pelvic contraction in one or other plane. A complete pelvic survey was advisable in elderly *primigravidæ*, in patients with persistent abnormal presentations, and in patients with a previous history of difficult labour or stillbirth.

Dr. Maitland said that in the peak year, when 1135 pelvimetries were carried out at the King George V Memorial Hospital, some 900 unselected patients had been investigated for a similar reason to that outlined in Dr. Macdonald's paper, and he had no reason to question Dr. Macdonald's percentage of pelvic types found in Australian women. Dr. Lance Cains had been working in that year with a cephalic phantom along similar lines to Dr. Peter Allen, of New Zealand. It was considered that delivery could occur even with a considerable decrease from the average symphysis-biparietal distance, and that it was unwise to regard an outlet as inadequate purely on mathematical grounds. In obstetrics one was dealing with a living woman and her unborn infant; the reaction of living tissues to the forces of Nature could not be reduced to a mathematical figure. The *symphysis pubis* itself might widen to over a centimetre. As a result Dr. Maitland was far more interested in Dr. Macdonald's second table, which gave the range of diameters associated with normal labour. In particular, he drew attention to the variations found which conformed to his own observations.

Dr. Maitland went on to say that a small woman usually produced an infant which was proportionately small, and a uniformly small pelvis was not obstetrically significant if mother and father were both small in stature. It might be very important for the obstetrician to inquire into, or observe, the physical stature of members of the family of both parents, for human beings did not differ materially from other animals when an inherently large strain was mated with a small strain. If a small pelvis was found to have android features it was significant, and attention must always be drawn to the pelvic type. The wise radiologist would refrain from prediction, for it was impossible to assess the power of the uterine muscle, the degree of safe moulding of the fœtal head, or the reaction of the pelvic joints, ligaments, soft tissues and even bones to the forces of labour. The real difficulty in pelvimetry was in summing up the compensating factors which might offset one or other narrowed diameter of the pelvic cavity or outlet. Referring to Dr. Macdonald's statement that patients with an android type of pelvis were more prone to abnormal labours, Dr. Maitland said that in that type the pelvic cavity was deepened by a forward inclination of a straight sacrum, a lengthened and narrowed sacrosciatic notch and convergent side walls in the pure type. Most android pelves were in the mixed group and had a gynæcoid or flat fore-pelvis. Normal anterior rotation of the occiput could not occur until a very low level was reached, and true cephalic application of forceps might be extremely difficult or impossible to obtain. Dr. Maitland agreed, therefore, that the obstetrician should be presented not merely with a list of mathematical measurements, but with the actual X-ray films, so that he might study the mechanism of labour which could occur in the particular pelvic type with which he had to deal.

Dr. Maitland said that it was a pity that they had been unable to hear Dr. Macdonald's opinion of cephalometry. He himself had given up the Ball method of pelvicephalometry some years previously as being unreliable, for he realized that there were too many unpredictable factors which could influence the obstetrical result. Normal labours resulted in many cases in which the Ball method had indicated a definite disproportion; in others, in which conditions were apparently normal, difficult labours

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resulted and even Cæsarean section was needed. No doubt the pelvic type was responsible for many cases in the latter group. Dr. Maitland said that with teleradiography a fairly accurate estimation of the biparietal or suboccipito-bregmatic diameter of the fœtal skull could be obtained in either a breech or a vertex presentation, but there were still the unpredictable factors associated with the powers, passages and passenger in relation to the otherwise normal fœtal skull. The obstetrician must be guided by a complete summation of the history and clinical evidence before him, and in that Dr. Maitland felt confident that accurate pelvimetry played an important part.

W. M. LEMMON (Victoria) said that although there were still some differences of opinion among obstetricians on the usefulness of pelvimetry, the differences were not so sharp as they had been, and the value to the obstetrician of X-ray mensuration increased in proportion to the amount of time and thought he put into the process of familiarizing himself with the subject, the extra knowledge which could be obtained and the limitations of the method. It was fair to say that it gave accurate information of the shape and size of the pelvis, not only of the brim, but of the mid-pelvis and outlet also, and with a clarity and certainty not obtained by any other means. Cephalometry was less satisfactory and might be misleading to the obstetrician. Dr. Lemmon listed the following conditions in which pelvimetry was called for: (i) A history of previous stillbirth, or live birth following difficult and tedious labour. In this case accurate knowledge of the size and shape of the pelvis was essential in planning the next delivery. The pelvis often proved to be normal, and the patient who had been told that she was "too small" had her mind set at rest. If the pelvis was abnormal, the obstetrician might be saved from the humiliation of adding another stillbirth to the patient's obstetrical history. (ii) A history of fracture or even of suspected fracture of the pelvis. Those fractures might result in irregularity of the shape of the outlet, and the difficulty might not become apparent until forceps delivery was attempted without success. (iii) Pelvic asymmetry resulting from unilateral hip disease. It was surprising how often the pelvis proved to be quite roomy, but sometimes strange mechanisms resulted from the deformity. It was reassuring to the naturally apprehensive lame patient to know early that her fears were groundless. (iv) Breech presentation in a *primigravida*. That was most important. During the delivery of a breech, the time available for moulding of the head was so limited that even a minor departure from normal in the size of one of the diameters, or in the shape of the sacrum, might assume a much greater importance than the same degree of deformity in association with a vertex presentation. (v) An unfixed head in a *primigravida* at term. This was not universally approved, as a routine, and Dr. Lemmon admitted to being somewhat selective in advising it; he based his choice of case on clinical assessment of the patient.

Dr. Lemmon said that obstetrical assessment of pelvimetric findings was, as Dr. Macdonald contended, best done by the obstetrician if he was sufficiently familiar with the method, or by the obstetrician and radiologist in consultation. To obtain the best results the obstetrician should be conservative in his outlook, especially at first, but as he became more experienced, he could give more weight to the radiological findings in his assessment of the case. To the obstetrician who was surgically inclined, small degrees of pelvic contraction might be merely an excuse for radical elective surgery. For such as they, pelvimetry were better had it never been heard of. In reviewing pelvimetric findings, the obstetrician could divide the information he received into two broad categories, which might, of course, overlap: (i) the influence of pelvic configuration on the probable course of labour; (ii) the assessment of small diameters. In the absence of appreciable pelvic contraction, the knowledge that the pelvis was anthropoid suggested that the head would enter the pelvis with the sagittal suture in the antero-posterior diameter of the inlet, usually with the occiput posteriorly, but possibly anteriorly, and would descend right through the pelvis without any rotation at all; delivery, if the occiput was posterior and assistance was required, was best accomplished by application of forceps in the face to pubes position. Less commonly realized was the fact that, in a breech delivery through such a pelvis, the commonly used Lövset manœuvre for delivery of the arms was less successful if the transverse contraction extended to the mid-pelvis and outlet. The presence of a so-called android pelvis with inward shelving of the side walls as one progressed downwards suggested that a posterior position of the occiput was likely, and that difficulty might be experienced in forward rotation of the occiput. Similar difficulty was common if there was a reduction of the normal sacral curvature. A high inclination of the brim, often associated with a six-piece sacrum, might have a considerable effect in interfering with engagement of the head in the pelvis.

The assessment of small diameters in regard to their effect on the subsequent labour was the most difficult problem of all. In the study of pelvimetric findings, a few broad principles were of value: (*a*) The whole pelvis should be considered—brim, mid-pelvis and outlet. If the brim only was contracted, the outlook was much more favourable than if the contraction extended also to the mid-pelvis and outlet. In the former case, also, the descent of the head through the contracted brim could be appreciated readily in a trial of labour, and, once the head was engaged, no further difficulty should be encountered. In the latter case, even after descent of the head into the pelvis, the obstetrician might be faced with a difficult mid-plane forceps with its attendant high fœtal mortality. (*b*) At any level, but especially at the brim, the outcome was likely to be better if only one diameter was diminished, for, as Chassar Moir had indicated, moulding might be conspicuously successful in such cases, whereas it was much less effective and less safe if there was general contraction of the pelvis. Much depended on the size of the fœtus; a large post-mature fœtus with a head of limited mouldability could cause difficulty where an average-sized or small fœtus would readily negotiate the small diameter. However, a small fœtus, particularly if premature, often stood moulding badly, and might die of intracranial trauma. Hence reports from the radiologist such as "difficulty may be anticipated unless the fœtus is small" were bad in principle, as the radiologist was tacitly suggesting that labour would be safer with a small fœtus. There the decision was surely the obstetrician's, and better wording would be "difficulty may be anticipated with a fœtus of average size". (*c*) The assessment of small diameters in the mid-pelvis and outlet was the most difficult of all, and was not made any easier by the fact that there could be a material increase in their diameters during labour, due to movement at the pelvic joints, often allowing a comparatively easy delivery, when difficulty seemed inevitable. It had been said that, if a head got into the pelvis, it could always be got out, and that was usually so; but adherence to the dictum cost babies' lives as a result of an awkward mid-forceps delivery. Appreciation of certain points about pelvimetry might help to avoid that tragedy. The first was that the degree of posterior inclination of the descending pubic rami was of great importance if the subpubic angle was small. If they were angled acutely backward from the symphysial plane, the descending head was forced backward because of the lack of available space in the anterior portion of the outlet, and a combination of that circumstance with contraction of the bispinous and bituberous diameters was most unfavourable. It was well to realize that some help might be be obtained by use of posture; the exaggerated Sims position might lengthen the posterior sagittal diameter of the outlet by as much as 7·5 millimetres. The second point was that the usual assessment of outlet capacity by the "rule of fifteen" (in other words bituberous *plus* post-sagittal diameter equals 15 centimetres or more) was satisfactory in many cases, but might break down badly if the bispinous diameter was small and set well forward in the mid-pelvis, for, as Williams and Arthure had shown, that forced the head forwards and prevented it from using what might be a fairly generous posterior sagittal diameter of the outlet. It was contended that if the sum of the ischial bispinous diameter of the mid-pelvis and

the available antero-posterior diameter of the outlet (measured with a 95 millimetre transparent disk fitted in the pubic arch) was 21 centimetres or less, lower strait dystocia would usually occur with infants weighing seven pounds or more, and with 50% of infants weighing less than seven pounds. Fortunately, however, outlet contraction of significant degree was rare in Australia, so difficult decisions had to be made only infrequently, and one should rarely consider elective Cæsarean section in such cases on radiological evidence alone.

SECTION OF PATHOLOGY, BACTERIOLOGY, BIOCHEMISTRY, EXPERIMENTAL MEDICINE AND FORENSIC MEDICINE, AND SECTION OF PUBLIC HEALTH, INDUSTRIAL MEDICINE, TROPICAL MEDICINE AND AVIATION MEDICINE.

Leptospirosis in Victoria.

A COMBINED MEETING of the Section of Pathology, Bacteriology, Biochemistry, Experimental Medicine and Forensic Medicine, and the Section of Public Health, Industrial Medicine, Tropical Medicine and Aviation Medicine was held to discuss the subject of leptospirosis in Victoria.

W. J. STEVENSON (Victoria) said that an investigation into leptospirosis in Victoria had been initiated some two years previously by the Fairfield Epidemiological Unit in collaboration with Mr. N. A. M. Wellington, of the Department of Agriculture. Serological and isolation tests carried out on swine and cattle in East Gippsland had revealed a high infection rate, particularly among swine. Of sixteen persons associated with the dairying industry who had a history of suggestive illness, nine had provided positive evidence of leptospiral infection. A serological survey carried out on 305 abattoir workers had shown that 13% were positive reactors in tests for *Leptospira pomona*. Of the positive reactors, the highest percentage was among slaughtermen who worked on swine, such as bacon factory workers. Recently a further 443 specimens of serum had been collected from abattoir workers in the metropolitan area, of which approximately 9% gave positive reactions. Dr. Stevenson said that although only 19 clinical cases of leptospirosis had come to the notice of the Health Department, it was felt that this figure represented only a small percentage of the total cases occurring in Victoria. A clinical diagnosis in the form of leptospirosis encountered was extremely difficult; there were usually no presenting signs and symptoms which distinguished the disease from many other pyrexial illnesses. Dr. Stevenson said that to summarize the position in Victoria it could be said that leptospirosis existed as an endemic disease of cattle and humans in certain occupational groups, namely, the meat trade and the dairying industry. The important infecting strain was *Leptospira pomona*, which had been first isolated in Queensland by Clayton and Derrick. The important reservoir of infection was swine, with cattle as a reservoir of less importance.

J. E. D. LANE (Victoria) said that leptospirosis was endemic in the dairying district of the Snowy River flats in East Victoria. It caused a sometimes fatal disease in cattle known as "red-water", and agglutination tests showed that benign infection was common in pigs. In 1950-1951, two unusually wet seasons, eight human cases had been observed. The illness sometimes called swineherd's fever occurred in farmers at times of flood. A history of a soaking in flood waters was given in two cases, five patients worked on the river flats in muddy conditions, and one patient was a piggery attendant. Only one was a woman, men most probably being exposed more frequently to infection. The ages of those affected ranged from six to thirty-eight years. The infection was of the *pomona* type, but *mitis* infection was found in the animals. The patients had a rapid onset of high fever, severe headache, limb, joint and back pains, and profound malaise. Joint pains were severe in one instance, and vomiting with abdominal pain was an alarming feature in a child. Clinical examination generally revealed little, although one patient had moderate albuminuria, one transient pyuria, and a third diminished air entry to portion of one lung. Temperature charts were kept in three cases and showed the characteristic febrile relapse between the fifth and eighth days. The duration of the illness was from five to thirteen days with an uncomplicated recovery. Conventional doses of penicillin or sulphonamides did not appear to influence the course of the disease.

A. A. FERRIS (Victoria), discussing the laboratory aspects of leptospirosis in Victoria, said that over the past eighteen months, 19 patients suffering from leptospirosis had been discovered. Twelve patients were dairy farm personnel who had influenza-like illnesses; four patients, of whom two were slaughtermen, presented evidence of meningeal inflammation; and three patients, all from the one abattoir, had a relapsing influenza-like illness. From only two of the 17 cases diagnosed was the causal organism isolated, and in both cases the strain was *Leptospira pomona*. The remaining cases were diagnosed as leptospirosis on serological evidence, and the tests all indicated *Leptospira pomona* as the infecting strain. Dr. Ferris said that serological surveys of an appropriate occupational group gave a more accurate index of the frequency of leptospiral infection, and studies of 748 specimens of serum from men connected with the meat industry in Victorian metropolitan and country centres showed a 10·5% infection rate. He discussed the interpretation of those results, and suggested two alternatives: either (*a*) *Leptospira mitis* as well as *Leptospira pomona* infections occurred in Victoria, or (*b*) coagglutination occurred between *Leptospira mitis* and *Leptospira pomona*, the only strain isolated to date, and *Leptospira pomona* might be the only endemic leptospira in Victoria.

Dr. Ferris then gave an account of the pathology of *Leptospira pomona* infection in animals, especially in guinea-pigs. He said that the clinical syndrome of leptospirosis in Victoria was not particularly characteristic; but in farm workers or meat workers the condition should be suspected in an influenza-like illness, especially where meningismus or actual aseptic meningitis was present, and perhaps in iridocyclitis. He indicated laboratory tests necessary to establish the diagnosis.

E. H. DERRICK (Queensland) said that he would like to mention, on behalf of Dr. C. N. Sinnamon and Dr. J. I. Tonge and their asssistants, some results obtained by those workers in North Queensland. There, leptospirosis was a frequent cause of fever. In the course of twelve months' investigation, 68 cases were diagnosed by the use of culture and serum agglutination tests. Strains of leptospiræ were grown in culture from the blood of 25 patients. Of those strains, two were of *Leptospira canicola*, this being the first recognition of the organism in Australia. Three other types new to Queensland were obtained: "Ives", which Dr. J. C. Broom found to belong to the *hebdomadis* group; "Celledoni", which might be quite a new type; "Robinson", which belonged to the *australis B* group. The isolation of those new leptospiræ and their subsequent routine use in agglutination tests resulted in the diagnosis of 16 cases of leptospirosis which would otherwise have been missed. A further 14 cases apparently caused by them would have been recognized as leptospirosis because of cross-agglutination. Dr. Derrick pointed out that the agglutination test was a valuable aid in diagnosis —43 cases had been recognized thereby—but it had certain limitations. A patient, although his serum was examined repeatedly, might fail to show significant agglutination against the strain of leptospira grown from his own blood. Another's serum might fail to agglutinate the homologous type, whilst agglutinating heterologous types, or it might give better agglutination against heterologous types. If a serum agglutinated several leptospiræ, one might make a reasonable diagnosis of leptospiral infection, but when the infecting leptospira had not been grown, one could not with certainty name its type from the agglutination results. In 21 cases in which a titre of at least 1:100 was

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given by the serum and in which also a strain of leptospira was grown, the type which gave the highest agglutinating titre was in fact the infecting type in 16 cases, but was not in five; in other words, to regard the type with the highest titre as the infecting type was likely to be correct only three times out of four. In North Queensland, culture was the only certain way of identifying the infecting type. Sometimes the repetition of the agglutination test with a further specimen of serum would clarify the position. Dr. Derrick mentioned, in conclusion, that another result of the work was to indicate that leptospirosis in North Queensland was not only associated with the canefields. In fact, 34 of 56 patients whose occupations were recorded had had little or nothing to do with cane.

E. F. THOMSON (New South Wales) asked Dr. Ferris whether he had had any experience with the complement-fixation test for leptospirosis, and whether he had found any leptospiræ in the cerebro-spinal fluid.

N. A. M. WELLINGTON (Victoria) said that he had been interested to read in an editorial in a recent number of the *American Veterinary Journal* that it might be possible for cattle to act as a reservoir of the disease for man. It was suggested also that human beings might maintain and spread the infection and might act as a source of the infection for cattle. It was important that great care should be taken in any approach to the problem of spread of leptospirosis. He pointed out that it was only recently that *Leptospira pomona* had been found in the United States of America. In Australia sheep were affected, and there was reason to believe on serological grounds that horses might also be affected. It was possible to cause an infection in horses with a virulent culture.

D. GORDON (Queensland) said that the speakers had approached the problem in a careful and methodical manner, and had obtained results from the occupational angle which were very interesting. With *Leptospira pomona* the laboratory diagnosis was clear cut. He pointed out that in dealing with the investigation of fevers in the canefield areas it was common to strike difficulty in the interpretation of agglutination reactions, and that some of the results were hard to interpret. One should be always critical, and the laboratory findings could not always be accepted as a last word. He had found that in some areas one had to rely largely on clinical judgement. In 1951 there was an epidemic of the disease due to *Leptospira pomona* in the wet areas of southern Queensland with about 60 cases. There were no residual urinary effects. He found no pattern, as seen in Victoria, in relation to rainfall, and he asked Dr. Lane what was the rainfall for August and what was its distribution. He stressed the importance of following up positive laboratory results in occupational groups. He mentioned an outbreak of leptospirosis due to *Leptospira pomona* which coincided with an outbreak of poliomyelitis. Many persons affected had been admitted to hospital with the diagnosis of poliomyelitis, and had subsequently been shown to be suffering from leptospirosis.

G. HARKNESS (Victoria) asked what changes were seen in the organs of calves which had died with "red-water" fever.

F. J. CAIRNS (New Zealand) said that *Leptospira pomona* had been found in New Zealand. He was interested in the pathological findings which Dr. Ferris had described, and he referred to a case in New Zealand, in which there were hæmorrhagic lesions in the lungs and focal necrosis in the liver.

Dr. Stevenson, in reply to Dr. Gordon, said that in following up people who gave a positive reaction one did find histories of minimal illnesses. It was difficult to decide whether those were cases of subclinical infection.

Dr. Ferris, in reply, said that he had had no experience with the complement-fixation test, and that he preferred the agglutination reaction. No attempts had been made to isolate the leptospiræ from the cerebro-spinal fluid.

Section of Anaesthesia.[1]

President: A. D. Lamphee, M.B., B.S., M.R.C.P., D.A. (R.C.P. and S.), F.F.A. (R.A.C.S.), South Australia.

Vice-Presidents: J. F. McCulloch, M.B., Ch.M., M.R.A.C.P., D.A., New South Wales; R. H. Orton, M.B., B.S., F.F.A. (R.A.C.S.), F.F.A. (R.C.S.), D.A., Victoria; D. R. C. Wilson, M.B.E., M.B., B.S., Western Australia; R. A. Lewis, M.B., B.S., D.A., F.F.A. (R.A.C.S.), Tasmania; A. W. Robertson, O.B.E., M.B., B.S., Queensland.

Honorary Secretary: V. Brand, M.C., M.B., B.S., D.A., Victoria.

President's Address.

ALLAN LAMPHEE (South Australia) in his president's address discussed the influence of modern methods of anæsthesia upon the teaching of students. He outlined the changes and advances that had occurred in the twenty-five years during which he had been teaching students to give anæsthetics and said that the science of anæsthesia had kept pace with and helped to make possible the enormous advances made in general medicine and surgery. However, he wondered what was the effect of all this on those who were the future general practitioners. There was a danger, which particularly applied to anæsthesia, of forgetting that the main function of the medical schools was to fit their medical graduates for general practice. By custom, the honorary anæsthetists at teaching hospitals taught the students; that position still held in Adelaide, and the resident anæsthetist and the registrar in anæsthetics were also instructors. That at first sight seemed adequate.

Dr. Lamphee digressed to express the view that, in the light of all circumstances, the ideal practical training in anæsthesia for a student was a thorough grounding in ether anæsthesia, given by the "open" method and also by a simple Shipway apparatus. He should be able to intubate the trachea and use a simple piece of apparatus like a Flagg's can, to give thiopentone intravenously, knowing the danger of intravenous anæsthesia to unsuitable subjects, and to perform lumbar puncture for low spinal analgesia; but only by giving ether could he learn the fundamental principles of anæsthesia. Unfortunately, most of an honorary anæsthetist's time was taken up with administration of specialized anæsthetics, and he had little chance to supervise students giving ether. Since many resident medical officers also had little chance to give anæsthetics, graduates could go into practice with only a meagre knowledge of the subject. Another danger was that the student would gain a false idea of the ease of giving specialized anæsthetics and of the indications for

[1] The meetings held by the Section of Anæsthesia with the Section of Surgery, and with the Section of Oto-Rhino-Laryngology, have been recorded.

their use, and yet know little in practice of the essentials of anæsthesia.

Discussing measures to remedy the situation, Dr. Lamphee said that it would have to be recognized that the day of the honorary anæsthetist as the sole instructor of students was over. The number of permanent resident anæsthetists, each receiving an adequate salary, would have to be increased. A department of anæsthetics should be established in every teaching hospital with a director who would have to interest himself in teaching students and resident medical officers. It might not be easy to find a young specialist anæsthetist who would teach what was needed for anæsthesia in general practice, but the teaching must be given.

H. J. DALY (New South Wales) said that similar problems to those mentioned by Dr. Lamphee arose at Saint Vincent's Hospital, Sydney; in other words, it was difficult to get enough "open" ether anæsthetics. Before the advent of intravenous anæsthesia there had been no difficulty, but now if a patient had been previously given intravenous anæsthesia, he strenuously objected to having "open" ether. A total of ten major anæsthetic administrations for each student was aimed at, and a card recording that those had been given was signed by a tutor in anæsthetics or the resident anæsthetist. It was not thought suitable to teach students intravenous anæsthesia, which was left for the junior resident medical officers. Students were shown the use of a laryngoscope and the anatomy of the larynx at the end of operation. They were taught to recognize the signs of respiratory obstruction.

J. H. WILLSON (Queensland) said that the matter presented a considerable problem related to the general population and to the number of anæsthetic tutors. The lecturer in anæsthesia at the University of Queensland had no time to give adequate teaching during his session at the hospital. Most of the teaching was done by a resident anæsthetist during the morning. As there were only two visiting anæsthetists, a bigger resident teaching staff was desirable.

A. L. BRIDGES WEBB (Victoria) asked what form of anæsthesia should be taught. The ethyl chloride-ether sequence with or without a "Pentothal" induction was considered most desirable. At the Royal Melbourne Hospital each student had three weeks' full-time tuition in the department of anæsthesia. Great difficulty was encountered in finding enough patients suitable for "open" ether, and the difficulty was increased by the insistence of the surgeons upon the use of diathermy.

J. F. MCCULLOCH (New South Wales) stressed the difficulty of finding enough patients for the use of "open" ether, but felt strongly that all patients should be given a "sleep dose" of "Pentothal" before the ether administration was begun.

R. H. ORTON (Victoria) referred to the fine work of the director of anæsthesia in organizing the tuition of students at the Royal Melbourne Hospital. He said that this was the outcome of a letter sent by the faculty of medicine to heads of anæsthetic departments at the various Melbourne hospitals. It was considered that the teaching should be limited to the simple methods mentioned. Attempts to teach safety measures during and after operation were stressed. At the Alfred Hospital 80% of anæsthetic instruction was given by members of the department of anæsthesia and only 20% by honorary anæsthetists. Three weeks' full-time instruction was given to each student, who usually gave 16 to 20 anæsthetics during this time. The number of cases obtained for the students depended to some extent upon the ruthlessness of the director of anæsthesia in persuading surgeons to allow "open" ether anæsthetics to be given.

D. G. RENTON (Victoria) said that although his work was largely with the neurosurgical unit, he felt that tuition in ether anæsthesia was an essential basis. All signs of anæsthesia and all complications could be observed during its use with sufficient time to deal with such emergencies as occurred. If intravenous anæsthesia was given, a complete resuscitation outfit should always be immediately available. Dr. Renton stressed the desirability of avoiding respiratory obstruction during anæsthesia, preferring the term "freedom of air passages" to "freedom of airway".

A. N. SLATER (New Zealand) said that he was confronted by the same problems. Sixth year medical students were too busy to worry about anæsthetic experience. The director of anæsthesia gave a course of tuition in fifth year, limited to use of ethyl chloride, ether and "Pentothal".

L. G. TRAVERS (Victoria) said that lack of enthusiasm on the part of students for anæsthetic tuition was overcome at the Royal Melbourne Hospital by an examination, conducted by the director, and the signing of books when the standard reached was adequate. If necessary the examination was repeated.

F. LEVENTHAL (New South Wales) said that in England similar difficulties in undergraduate teaching were encountered. A course of lectures dealing with the principles and science of anæsthesia was given to the students, who then went to tutors for a ten-week term, during which time they gave 20 anæsthetics and assisted with 10. Induction was with "Pentothal", followed by administration of gas-oxygen-ether in a Boyle circuit. "Open" ether and nitrous oxide were given for minor operations. The importance was stressed of teaching about the hazards occurring during transport of unconscious patients from the operating theatre. Students were shown laryngeal anatomy and intubation. In England the accent was on turning out anæsthetic specialists, rather than teaching general practitioners, the result being that almost all anæsthetics in Great Britain were now given by trained or trainee anæsthetists.

S. V. MARSHALL (New South Wales) agreed about the difficulty of finding material for student instruction. He said that at Sydney Hospital the students were allotted to various operating theatres, and the senior resident staff did a good deal of tutoring. He was very impressed at the three-week term for students in Melbourne devoted entirely to instruction in anæsthesia.

WILLIAM COLE (Victoria) said that students after three weeks' intensive training knew a great deal more than he did when he was a student.

WINIFRED WALL (South Australia) felt strongly that students should be encouraged to take a personal interest in patients by speaking to them and giving some sort of explanation of what was to be done in the way of anæsthetic treatment.

Dr. Lamphee, in reply, said that he greatly appreciated comments made on the importance of treating patients as individuals and not just as "cases". He felt that conditions in England could not be applied in Australia, where so many of the students subsequently went into general practice and had to give their own anæsthetics. He agreed that honorary anæsthetists were unable to give anything more than minor instruction in anæsthesia, as they were too busy giving complicated anæsthetics. He was most impressed by the directors of anæsthesia in Melbourne and regretted that local difficulties in South Australia made such an appointment seem impossible.

Deliberate Hypotension during Anæsthesia.

R. H. ORTON (Victoria) presented a paper on the deliberate use of hypotension during anæsthesia. He said that in the past the fall of blood pressure associated with many forms of anæsthesia had been considered detrimental. Only in very recent years had attempts been made to control the fall and to make deliberate use of it. The basis of the old viewpoint was that lowered blood pressure indicated the presence of "shock", but the introduction of sympathetic ganglionic blocking agents had caused these opinions to be reconsidered. With these agents one could lower the blood pressure and yet maintain a normal cardiac output and a normal blood flow through the various organs of the body. No compensatory mechanisms were brought into action, and none of the changes interpreted as "shock" appeared. If in a fall of blood pressure associated with

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any form of anæsthesia the only factor operating was sympathetic block, the fall could be ignored. Unfortunately with spinal analgesia the fall appeared to be due to decreased cardiac output.

Dr. Orton said that with deliberate lowering of blood pressure during anæsthesia, the anæsthetist gained added worries and the surgeon a bloodless field; the point to decide was whether the patient benefited from the bloodless field, and if so, how it was best achieved. Dr. Orton described the effect on the body of administration of a hypotensive agent, the potential dangers associated with it and the means of countering them. He outlined the procedure advised when hypotensive methods were used in association with anæsthesia for surgical operation. After referring to his results in a series of 165 cases, he listed the following facts in favour of the hypotensive methods: the patients required less anæsthetic drugs; during thoracic surgery the pulmonary secretions were suppressed and caused less trouble; the patients had euphoria on the day after the operation and needed less sedative; the average blood replacement need was much less; secondary hæmorrhage had not been met with, though more careful post-operative nursing was needed. In conclusion, he said that hypotensive methods appeared to have some place in anæsthesia, and provided the cases were carefully selected complications should not arise. However, the method could not be used unless the anæsthetist was certain that the surgeon would be meticulous with his hæmostasis, a condition difficult to ensure with an almost bloodless surgical field.

J. H. STACE (South Australia), in opening the discussion, expressed lack of enthusiasm for hypotensives. He thought that it was a shot-gun method for reducing bleeding, and that attention to other causes of increased bleeding were well worth while. He referred particularly to resistance in anæsthetic circuits tending to raise the intravenous pressure and the vasodilatation resulting from rise of temperature in the use of a Walter's canister. Elevation of the operation site also limited bleeding. He mentioned the difficulties in deciding between the increased intravenous pressure following assisted respiration and the possible vasodilatation from carbon dioxide retention, and also the bleeding which occurred in the surgical approach to many organs; he thought that infiltration of the superficial tissues did much to limit bleeding.

H. J. DALY (New South Wales) said that he was interested in the reference to euphoria in the post-operative stage of hypotensive treatment. He had never been very happy about this form of treatment and felt that it had no place in private anæsthetic practice.

N. W. BARTROP (New South Wales) said that he had used the technique in some cases of fenestration; but he had found that after six such performances the operation time was no less and therefore had abandoned the technique. He referred to the use of the prone "jack-knife" position in planned hypotension, and said that he had few worries in the particular cases about which the surgeon was most enthusiastic. He felt that raising the legs at the end of operation while keeping the head low was preferable to the use of "Methedrine".

A. N. SLATER (New Zealand) said that he had had little experience of the technique, but that it did seem satisfactory in the exploration of intervertebral disk. He referred to a report from London of two operating theatre deaths in young men from unsuspected coronary disease.

W. H. G. COLE (Victoria) stressed the fact that hypotensive drugs also tended to upset the cardiac reflex mechanism and that the restoration of the peripheral resistance did not necessarily restore the normal physiology. He had found that the use of small repeated doses of hexamethonium and infiltration of the tissues with a weak solution of adrenaline gave very satisfactory results without a great fall of blood pressure.

A. E. SHAW (Queensland) referred to the importance of a complete understanding of physiological principles involved. He said that lack of observation of the patient both by surgeon and by anæsthetist was possibly the cause of trouble, and referred to a report in a recent journal of permanent renal damage following prolonged hypotension.

G. H. BURNELL (South Australia) said that in London there was very little general interest in the use of hypotensives, except at the Westminster Hospital, where they were used extensively. One of the honorary anæsthetists used such large doses as 450 to 500 milligrammes in one case, and in some cases a dose of 200 milligrammes was used as an initial dose. In 600 cases there had been three deaths, one of which was due to renal failure. In every case the patient was kept flat for twelve hours, and analeptics were avoided. Euphoria was a constant accompaniment of this form of therapy, but its cause was unknown. There semed to be a feeling in London that there was an absence of complete frankness about fatalities and complications generally. Blindness and renal failure had been reported in some cases.

N. H. GEORGEFF (Victoria) stressed the importance of post-operative care, and said that he had used the method in 15 cases, but was not very enthusiastic about it. He mentioned a post-operative fall of blood pressure occurring as a result of a "stir-up" regime.

J. F. MCCULLOCH (New South Wales) mentioned the wide variation of dosage in individual cases from 20 to 300 milligrammes, and deprecated the use of large initial doses.

Dr. Orton, in reply, suggested that the euphoria might result from small anæsthetic dosage and absence of shock. He said that the pulse rate was usually slow except in some cases in which "Flaxedil" had been used. He pointed out that local infiltration with adrenaline in association with the use of hypotensives would not raise the blood pressure. Noradrenaline was necessary for such a purpose. He had met with oliguria in only one case, and that was when the pre-operative renal assessment had been overlooked. He said that a large initial dose of a hypotensive drug was not always necessary, and that with "Pentothal" anæsthesia there was a considerable blood pressure fall if the legs were lowered. He allowed his patients to sit up after their systolic blood pressure had reached 100 millimetres of mercury. He agreed with the importance of not giving "Methedrine", and on the necessity for adequate post-operative care.

Thiopentone-Sparing Combinations.

L. T. SHEA (New South Wales) presented an evaluation of thiopentone-sparing combinations. He said that thiopentone was a weak analgesic agent. Hence, under conditions of high tolerance to the drug, inadequate premedication and heavy surgical load, analgesia was often inadequate. Even that inadequate result involved a large dose of thiopentone (perhaps an overdose), and the recovery therefrom would be prolonged. The administration of suitable supplementary agents concurrently with thiopentone minimized most of those disadvantages. Dr. Shea said that in his paper a comparative quantitative study of the usual supplementary agents would be made. First the dose-time ratio for unsupplemented thiopentone over a series of 1000 cases was determined. This was taken as the standard. The effect of supplementary agents on that ratio was then assessed, the following conclusions being reached: (i) The greatest beneficial shifts of the standard curve were produced by the strongest supplements, for example, ether and decamethonium iodide. (ii) With light surgical loads the weaker supplements (nitrous oxide, pethidine, "Trilene") produced a beneficial effect, but as the load increased, the effect of the weak supplements became relatively less. The choice of a supplementary agent then became a question of reconciling the following: (i) the patient's tolerance, (ii) the expected surgical load, (iii) the fire and explosion hazard which often limited the choice. Hence, weak supplements were indicated when the tolerance was low and the load was light; strong supplements were indicated when the reverse obtained. Since the strong supplements would do as much as and more than the weak supplements, there was a good case for the routine use of strong supplements except when they were definitely contraindicated—for example, fire risk

and ether. Dr. Shea gave two examples. For the insertion of a Smith-Petersen nail in a frail old woman, he suggested the use of thiopentone, nitrous oxide and oxygen and pethidine; for a herniorrhaphy in a lusty young male, he suggested thiopentone with decamethonium iodide, or thiopentone with a minimal amount of ether.

B. L. STANTON (Victoria) thought that Dr. Shea was a little harsh in his criticism of pethidine. He said that the incidence of emergence delirium was much less common since the use of cyclopropane had been abandoned. Pethidine should not be used during the last thirty minutes of anæsthesia.

R. H. ORTON (Victoria) agreed on the important fact that "Pentothal" was not an analgesic, and thought that frequently the effect was one of retrograde amnesia. He favoured the use of morphine given intravenously as an adjuvant, but it had to be used very cautiously. Mushin, of Cardiff, now said that he never used more than 50 milligrammes in one case.

A. V. BALTHASAR (New South Wales) referred to the effect of variable surgical trauma. A patient would tolerate filling of teeth without any untoward reaction, but would move violently if an extraction was carried out.

Dr. Shea, in reply, said that pethidine was undoubtedly a weak analgesic agent, but that if used with discretion it was very helpful, particularly in promoting a long period of post-operative comfort.

Section of Dermatology.[1]

President: H. M. Trethowan, M.B., Ch.B., D.C.H. (R.C.P. and S.), Western Australia.

Vice-Presidents: A. J. Day, M.B., B.S., Victoria; W. C. T. Upton, M.B., Ch.M., M.B., B.S. (*ad eundem gradum*), South Australia; J. J. Witton Flynn, M.C., B.A., M.B., Ch.M., New South Wales; A. J. Foote, M.R.C.S., L.R.C.P., Queensland; R. J. D. Turnbull, M.B., B.S., Tasmania.

Honorary Secretary: J. Conquest, M.B., B.S., Victoria.

President's Address.

H. M. TRETHOWAN (Western Australia) took as the subject of his president's address "Clinical Aspects of Cutaneous Carcinoma". He said that the condition was common in parts of Australia, and if the results of treatment were to be improved the condition should be detected in the early stages. The watchful general practitioner might help by finding early lesions during his daily routine. Discussing incidence, Dr. Trethowan said that 55% to 60% of basal celled carcinoma occurred in the male. The percentage of lip carcinoma was even higher. Most skin cancers occurred in the latter half of life, but they could occur in young people. The effect of heredity was controversial; the influence of greatest importance was the inheritance of a fair skin and complexion with a poor tolerance to sunlight. There was an association between cutaneous carcinoma and occupations involving repeated contact with a variety of carcinogenic agents; but the number of occupational carcinomata which developed was relatively small. The important factor was exposure to the sun. Race had a bearing on the incidence of skin carcinoma, which was common in the white races and rare in the coloured. The most susceptible type of person was the fair, sandy or auburn-haired person with a fair skin, easily burnt on exposure to sunlight, and reacting to it by freckling instead of tanning. Such people, after having spent some years in an outdoor life, might show the characteristic changes of chronic solar dermatitis on the face, neck, hands and forearms, with the development of multiple malignant growths. They had a tendency to continue to produce skin carcinomata for the rest of their lives. Dr. Trethowan then described the following clinical types of skin carcinoma: (i) basal cell carcinoma: (*a*) the rodent ulcer type, (*b*) the cystic type, (*c*) the pigmented type, (*d*) the deep type, and (*e*) the morphœa type; (ii) squamous cell carcinoma. He said that there was histological overlapping between the types and there were also the superficial or intraepidermal basal cell lesions which most commonly occurred on the trunk. Most basal cell lesions appeared on the exposed surface of the skin and the majority on the head and neck, especially the centre of the face. It seemed likely that factors other than sunlight had a bearing on their localization: some lesions, particularly the cystic type, seemed to occur along the lines of fusion of the embryonic developmental processes of the face; in many commonly affected areas there was relatively little subcutaneous tissue; many patients were in the older age groups, and the skin in the temporal, infraorbital and lachrymal areas tended to be thin, rather inelastic, rather lacking in oil and sweat and with little subcutaneous fat in comparison with that on the lower part of the face. In conclusion, Dr. Trethowan said that because of the influx of people of northern European descent and of the tendency to an increase in primary and agricultural industries, together with the types of sport indulged in by young people, the present high incidence of the disease would be maintained and even increased. The members of the medical profession should attempt to offset the high incidence firstly by improving their methods of treatment, secondly by treating as many lesions as possible in the early stages; the public, as well as the medical student and young medical practitioner, should be educated to that end.

R. C. E. BRODIE (Victoria) drew attention to the observations of Dr. Herman Lawrence that there was a significant relationship between long hours of sunlight and low humidity and the occurrence of cutaneous carcinomata. Long hours of sunlight combined with high humidity were not so carcinogenic.

R. R. WETTENHALL (Victoria) observed that the fear of the effects of excessive exposure to strong sunlight often caused parents to over-protect their children with clothing. This had been a factor in the production of rickets in some areas. In New Zealand it was considered that day colds and day hot winds played a definite part in causing cutaneous neoplasms. Italians with dark swarthy skins were not so susceptible as the fair-skinned types. Occupation could be unsuitable for certain individuals—for example, the red-haired and fair-complexioned fireman. Dr. Wettenhall drew attention to the reduced frequency of gross destructive changes now that treatment was initiated early in the disease. He stated that there had been great difficulty previously in differentiating between basal cell carcinomata and some cases of *lupus vulgaris* and paid tribute to the work of Dr. Herman Lawrence, Sir Normal Paul and Dr. E. H. Molesworth.

B. B. BARRACK (Queensland) considered that the proportion of cutaneous carcinomata was probably slightly greater in Queensland than in New South Wales. He considered that the incidence was probably relatively higher

[1] The meeting held by the Section of Dermatology with the Section of Radiology and Radiotherapy has been recorded.

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in the inland areas of Queensland than in the more humid coastal areas. Few cases of basal-cell carcinoma were seen in Italians in Queensland. It was an interesting fact that in the old-type bushman the left hand was more affected than the right, by virtue of his habit of holding the reins in his left hand. Solar radiation was often aided by trauma in the causation of cutaneous carcinoma.

The Treatment of Cutaneous Neoplasms.

W. C. T. Upton (South Australia), discussing the treatment of cutaneous neoplasms, said that before the actual treatment was begun there were certain principles to bear in mind. (i) A correct diagnosis was essential. When there was any doubt, a biopsy should be performed. (ii) As little damage as possible should be done to the surrounding skin. (iii) The patient should be made to suffer as little inconvenience as possible. (iv) The tumour should be completely removed or destroyed. (v) The site of the tumour should be studied, as certain areas were more liable to radiation necrosis than others. (vi) It was important to assess the type of skin to be treated. (vii) There should be a reasonable "follow up" after the treatment of malignant neoplasms. (viii) One should always aim for a good cosmetic result, especially in the treatment of neoplasms in exposed areas in females. Dr. Upton then discussed the various types of common moles, and gave their appropriate treatment in detail. Special emphasis was laid on the surgical treatment of pigmented moles if their removal was necessary. Referring to precancerous and cancerous conditions of the skin, Dr. Upton made a plea for preventive measures, especially in the care of young subjects. He gave prescriptions for this purpose and advocated the use of colourless lipstick by males. Dr. Upton then discussed leucoplakia on the lips, and said that the cause should be ascertained and removed if possible. Superficial diathermy or fulguration was recommended in preference to irradiation. In discussing keratoses, rodent ulcers and epitheliomata, Dr. Upton called attention to the "erythematous keratoma", and said that carbon dioxide snow was used if the lesion was confused with an early patch of *lupus erythematosus*. For the usual types of malignant lesions of the skin X-ray treatment in divided doses was advocated. In the treatment of certain types, surgical diathermy was followed by irradiation. A somewhat conservative dosage of X rays was used for early lip cancers. Dr. Upton finally referred to painful nodule of the external ear. He said that fulguration and curettage brought relief in many cases. If they failed, resection of the affected cartilage was essential.

L. Albiston (Victoria) said that he had not seen malignant change occur in a pigmented hairy mole from which the hairs had been removed by electrolysis. It was his opinion that all moles except the black and blue-black moles could be safely treated by diathermy or electrolysis. The number of failures in cases of skin carcinomata treated by irradiation was small. The surgeons had their failures too, but as in medicine generally, one did see one another's failures, and one must not condemn a method of treatment on that evidence alone. Where the danger of radionecrosis existed, as in the case of lesions on the back of the hand, it was often wise to refer the patient to the plastic surgeon. In certain cases, when the lesion was a small non-infiltrated basal-cell carcinoma, application of a standard strength radium plate was a good method of treatment.

A. Burrows (Canberra) pointed out the bad results often seen many years earlier when surgery was the only available treatment for rodent ulcer. The results were much better now since the introduction of radiation therapy.

J. M. O'Donnell (Western Australia) said that he had not seen malignant change develop in the hairy pigmented mole treated with electrolysis. He regarded that lesion as non-malignant in most cases, and preferred the cautery to diathermy with treatment of small lesions of various types. The figurate pigmented mole on the leg of a child must be granted the greatest respect and erased. Keratoses seemed to occur more commonly from lesions on the legs than from lesions situated elsewhere. In the treatment of superficial keratoses, the application of carbon dioxide snow was the treatment of choice.

A. J. Hakendorf (South Australia) considered it unnecessary to remove a raised lesion to skin level before applying radiation therapy. Radiation therapy could be safely given to a lesion on the palm of the hand when the dose was fractionated over a period of, say, twenty-one to thirty days.

R. C. E. Brodie (Victoria) advised the use of radium after the removal of a mole with diathermy. That procedure frequently prevented keloid formation. The best method was the application of a five-milligramme plate for one hour.

A. J. Day (Victoria) considered that all pigmented moles should be either erased or left alone, although the proportion developing malignant change was small. The ordinary basal-cell carcinoma responded very well to fractionated doses of X-ray therapy. Surgery was most useful in selected cases.

R. R. Wettenhall (Victoria) said that secondary infection in an ulcerating rodent ulcer often augmented the destructive effects of the lesion. Penicillin ointment tended to counteract that effect. He advised the use of radium for the treatment of superficial keratoses of the nose.

B. K. Rank (Victoria) considered that clinical diagnosis was sufficient in the ordinary case of basal-cell carcinoma. Biopsies should be reserved for the doubtful cases. He asked Dr. Upton what were the criteria for the treatment of hyperkeratoses, stressed that the cosmetic effect could be overemphasized in the treatment of rodent ulcers, and appealed to the meeting to keep an open mind on methods of treatment. He did not consider that basal-cell carcinomata could be treated satisfactorily by surgery in an outpatient clinic. Surgical treatment must be adequate and undertaken seriously.

J. Witton Flynn (New South Wales) also appealed to those present to keep an open mind in selecting the method of treatment of cutaneous neoplasms.

Dr. Trethowan, from the chair, summed up the discussion and thanked the plastic surgeons for their help in treatment of skin neoplasms.

Near Misses (Dermatological).

Arthur J. Day (Victoria) said that his paper, "Near Misses (Dermatological)", was an attempt to describe, and to demonstrate by colour projections, some of the more commonly made errors of omission and commission in the diagnosis and treatment of skin conditions frequently seen, particularly at the Children's Hospital, Melbourne. He discussed the methods of clinical investigation of *tinea capitis* with its differential diagnosis from impetigo, *alopecia areata*, eczema, *seborrhœa capitis*, trichotillomania and psoriasis. He made a plea for the early treatment of hæmangiomata in babies instead of the old-fashioned and oft-repeated "wait and see" policy, which sometimes had tragic results owing to the loss of relative radiosensitivity of the growth by the age of two years. Dr. Day then discussed some features of scabies, *urticaria papulosa* and congenital syphilis, and also *tinea corporis*, eczema and secondary syphilis in differentiation from *pityriasis rosea*. He said that *granuloma annulare* had been mistaken for malignant disease, as also had pyogenic granuloma; but the short history in the last-mentioned was an important factor.

Dr. Day described cases demonstrating the value of the knowledge of the family gained by the family physician, and referred to the necessity for a thorough examination of the patient.

J. Witton Flynn (New South Wales) said that Dr. Day had proved the value of clinical photography in his presentation at the discussion. In *urticaria papulosa* light might certainly be a factor. Protective clothing helped some such patients against the effect of light and insect bites. *Pityriasis rosea* could occur on the face and legs, although rarely. He emphasized the fact that many dermatological diseases were not always true to type.

R. C. E. BRODIE (Victoria) said that *pityriasis rosea* and secondary syphilis could closely resemble one another.

Dr. Trethowan, from the chair, said that it was most refreshing to hear the experienced admit and discuss their mistakes. In most parts of Australia they were well aware of the difficulty in diagnosis of tinea of the scalp, particularly when self-administered treatment had been applied. He considered the importance of recognition of *granuloma annulare* and scabies. The text-book description of scabies was not always seen clinically.

Dr. Day, in reply, said that his paper had been primarily prepared for presentation to general practitioners. He had not noticed the effect of light in *urticaria papulosa*. He realized that *pityriasis rosea* could appear on the face, although that would be rare.

Facts About Fungi.

E. S. MANCY (Victoria) read a paper entitled "Facts About Fungi". He built his paper around a collection of slides which were shown on the screen. First of all he showed slides of a number of conditions which, although not of fungous origin, had similar clinical appearances. He discussed the making of a diagnosis by microscopic and cultural methods, he pointed out that the results of culture frequently indicated the source of the infection, and he took the varying sources of infection as an introduction to the different species of fungi. He considered in turn the types isolated from kittens, puppies, cattle and mice in association with the corresponding lesions found in human beings; he then dealt with the types restricted to human beings. During his discussion of the lesions in human beings caused by each species he made a few comments about treatment and prognosis.

R. LANGLEY (Victoria) advised the use of 5% potassium hydroxide solution and 25% glycerin in water for the examination of hairs containing fungus. That solution did not dehydrate, and made it possible for the hairs to be used for culture. He recommended the examination of multiple simulaneously taken specimens rather than that of specimens taken at intervals.

W. C. T. UPTON (South Australia) said that cases of mouse favus had been seen in South Australia in areas where wheat was stored for a long period. However, those cases had not been proven scientifically.

J. I. CONNOR (Victoria) mentioned the investigation of a mouse plague in Victoria in 1934 by the Walter and Eliza Hall Institute of Medical Research.

J. WITTON FLYNN (New South Wales) said that it was usually recognized that it was the young cat or dog which transferred the animal-type ringworm.

DENIS CLARKE (Victoria) applauded the work of Dr. Mancy in the furtherance of knowledge of investigation in fungous diseases.

Dr. Trethowan, from the chair, said that most pets were capable of carrying various types of fungous disease and of transmitting some of them to humans. The florid type of Audouini infection was not often seen in Western Australia. He asked Dr. Mancy to describe his method of avoiding contamination in cultures in a small personally-run laboratory.

Dr. Mancy, in reply, said that the trichophyton test was of great value in the diagnosis of vesicular fungous infections of the feet. He said that he had seen puppies which were still infective after twelve months. In reply to Dr. Trethowan's question, he said that he used small stoppered bottles to avoid culture contamination.

The Seborrhœic State and its Associated Disorders.

R. J. DAVID TURNBULL (Hobart) read a paper entitled "The Seborrhœic State and Its Associated Disorders". He said that the seborrhœic state or diathesis was the underlying factor in a group of related skin disorders which might for convenience be called the seborrhœic dermatoses, and although there might be a multiplicity of causes, nevertheless those dermatoses appeared in those persons who possessed a certain constitutional make-up. That related group of skin disorders consisted of: *pityriasis capitis et corporis*, rosacea, *acne vulgaris*, *seborrhœa oleosa* and seborrhœic dermatitis. Dr. Turnbull thought that, as it had been said that the seborrhœic state was an exaggeration of the normal physiological condition, a brief survey of the normal was necessary. It was now believed that a more important change than the actual increase in sebaceous secretion was a change in the chemical quality of the secretion, and it was that chemical change which provided the essential basis upon which seborrhœic disorders arose. Several theories had been put forward as the cause of the state and they could best be discussed under the following headings: hereditary factors, general hygiene, water retention, diet, endocrine factors, psychological factors. There was no doubt whatever that the general consensus of opinion cited the main causes as endocrinological and psychological. Although the thyroids and adrenals might play some part, it was mostly from the activities of the androgens that the seborrhœic disorders arose. The activity of sebaceous glands depended upon the ratio between androgenic and œstrogenic influences upon the skin. Seborrhœic dermatitis was a condition sometimes precipitated by psychogenic factors. It was easy to regard it as a skin reaction which was inborn and which might be precipitated in many ways—by trauma, by infection, and occasionally by mental stress. It would thus be seen that if the six factors mentioned were the basis of the cause of the seborrhœic state, then treatment of any of the seborrhœic disorders would have a common foundation. Thus, whether it was seborrhœic dermatitis or *acne vulgaris*, the fundamentals of treatment for each disease were the same.

I. O. STAHLE (Victoria) cast doubt on the existence of the seborrhœic state as it was usually described. He said that there was certainly an increased flow of sebum in *acne vulgaris*, but observed that many patients with so-called seborrhœic dermatitis presented with dry, not greasy, skins. There certainly appeared to be such a skin as the seborrhœic skin, but he requested discussion on the precise nature of the so-called seborrhœic diathesis.

J. I. CONNOR (Victoria) quoted cases of Dr. Ingram's, in which a familial incidence of *pityriasis capitis* was seen. He considered that the mode of infection was by the dropping of infected scales from the scalps of parents on to the receptive scalps of their children.

J. WITTON FLYNN (New South Wales) did not agree that *acne vulgaris* tended to be a self-limited disease in males, and therefore stressed the need for continuous treatment of all types in both sexes. He did not approve of the use of such sensitizing substances as sulphadiazine, and avoided the use of ointments in *acne vulgaris*. He regarded X rays as a most important addition to the treatment armamentarium, and considered that certain patients improved with the judicious use of sedatives. However, he did not agree with those who administered heavy sedation.

W. W. LEMPRIERE (Victoria) emphasized the necessity of continuing the routine treatment in acne while X-ray therapy was being used. He deprecated the use of X rays in short "blitzes" with large doses, and said that small doses of X rays had a selective action on the delicate glandular elements that were affected in *acne vulgaris*. Thus doses of the order of 100*r* to 200*r* were given for strictly limited periods. He considered that stilbœstrol could be usefully employed in conjunction with X-ray therapy in certain cases of *acne indurata*.

B. FISHER (New South Wales) said that he had not seen any improvement in *acne vulgaris* following the use of androgens, but had seen the condition improve with œstrogens. He considered that ultra-violet light was useful when it was employed after X-ray therapy.

C. SUTHERLAND (Victoria) considered that there might be a relationship between atopic dermatitis and seborrhœic dermatitis. He considered it possible that the relationship was bound up with the question of allergy.

DENIS CLARKE (Victoria) called acne merely the physical sign of a disorder of end organs which could result from internal and external factors. He instanced oil acne and bromoderma. Therapy had to be dual, dealing with all

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internal and external factors. Increasing knowledge of the endocrine glands might result in more effective hormone therapy. He considered that avitaminosis *B* could sometimes cause a dyssebacea resembling seborrhœic dermatitis, as sometimes seen after dietetic restriction and total gastrectomy. He had cleared up that condition by injections of the vitamin *B* group and by oral administration of the same group of vitamins without external therapy.

L. W. Lind (South Australia) gave a warning against the use of ultra-violet light in conjunction with X-ray therapy.

Dr. Trethowan, from the chair, said that the psychological aspects in seborrhœic dermatitis could best be dealt with by the dermatologist himself. Only in the treatment of obviously unstable people was it necessary to invoke the assistance of the psychiatrist.

Dr. Turnbull, in reply, said that Dr. Barbour, of London, used androgens in cases of *acne vulgaris* occurring in the weedy type of male subject. The results were good. However, Dr. Turnbull realized that the administration of œstrogens was the logical approach to hormone therapy. He favoured the use of suitable ointments, particularly those containing wool fat, and considered that recurrences and relapses due to emotional factors were best countered by sedation with phenobarbitone. He said that he had had no experience with the use of ultra-violet in *acne vulgaris*.

Varicose Veins and Dermatology.

John Summons (Victoria), introducing his paper on varicose veins and dermatology, said that the reasons for a dermatologist's choice of a partly surgical subject were four: the commonness of cutaneous manifestations of varicose veins, the enormous amount of incapacity caused by them, the necessity to urge more cooperation between dermatologist and surgeon, and the fact that some methods of treatment indicated a lack of awareness of the underlying processes. Dr. Summons gave a brief historical review of the knowledge of varicose veins from the days of Hippocrates, and he expressed the opinion that the dermatologist could undertake only portion of the treatment—surgical cooperation was essential. He defined a varicose vein and discussed the altered physiology and pathology of a limb with varicose veins. He thought that "lower leg stasis syndrome" was the most apt term for that state of affairs. He then discussed the ensuing cutaneous manifestations—namely, cyanosis, œdema, pigmentation, dermatitis and ulceration.

In regard to local treatment, Dr. Summons emphasized the necessity for great caution in the use of topical remedies, and he condemned the sulphonamides, topical anæsthetic preparations and antihistamines in any form. He suggested the use of aluminium acetate (2%) with "Monacrin" (0·1%) or "Vioform Cream" for moist lesions, and a simple antipruritic application for dry lesions. If surgical intervention was impracticable, Unna's paste stockings were preferable to adhesive elastic bandages. Elastic stockings had their place. Dr. Summons discussed general treatment and explained the reasons for failure of injection or combinations of injection and superficial ligation. He also reviewed recent work pointing to the necessity of ligating the deep veins, particularly in those cases in which there was a history of deep vein thrombosis.

I. O. Stahle (Victoria) said that in cases of deep femoral thrombosis and associated conditions, stasis dermatitis occurred only when the deep veins had been opened up. He considered that full trial should be given to local and other supporting treatment before such patients were referred to the surgeon.

D. P. Sapsford (Queensland) said that deep vein ligation (he preferred popliteal ligation to femoral ligation) after incompetence had been proved by phlebography was of value, though in a rather smaller percentage of cases of ulceration than had been thought. He considered that ulceration might be associated with varicose veins alone or with incompetent deep veins, or with both. He further considered that the parenteral administration of penicillin was necessary from the beginning when signs of infection were present.

F. Bauer (Victoria) said that he wished to add an observation made at the Repatriation General Hospital, Heidelberg. It was found that the patient with arteriosclerotic ulcers on the lower one-third of the leg had no sugar in his urine, but sometimes showed a typical diabetic blood sugar curve. It was found that in those elderly patients a high renal threshold for sugar was present. Dr. Summons had spoken on the very theoretical question of the ætiology of stasis dermatitis, and stressed the fact that it was caused by elongated and dilated varicose veins. To Dr. Bauer's knowledge doctors had for many years argued over that cause, some stating, as Dr. Summons had stated, that veins dilated first, and others stating that incompetence of the veins was primary. That to him was the same problem as the argument which had gone on for many years about which had been the first, the egg or the chicken. He submitted to Dr. Summons that the chicken came first.

R. A. Langley (Victoria) emphasized a sign of true varicose ulceration—the ulcer was completely surrounded by hæmosiderin pigmentation. Post-phlebitic and arteriosclerotic ulcers lacked that pigmentation unless complicated by the presence of independent chronic varicose veins.

Denis Clarke (Victoria) made a plea for prophylaxis in regard to the lower leg syndrome. He considered it important, when resting the patient, to keep his legs moving whilst he was in bed. He sought the surgeons' opinion as to the best treatment for acute "white leg".

Dr. Sapsford, in reply to Dr. Clarke, considered that the use of the anticoagulants, heparin and dicoumarol, was superior to sympathectomy.

Section of History of Medicine.

President: A. S. Walker, M.D., Ch.M., F.R.A.C.P., New South Wales.

Vice-Presidents: W. E. L. Crowther, D.S.O., V.D., M.B., B.S., F.R.A.C.P., Tasmania; B. C. Cohen, M.B., B.S., Western Australia; C. C. Jungfer, M.D., B.S., M.R.A.C.P., South Australia; Associate Professor K. F. Russell, M.B., M.S., F.R.A.C.S., Victoria.

Honorary Secretary: K. Bowden, M.B., M.S., Victoria.

President's Address.

A. S. Walker (New South Wales) chose as the subject of his president's address "Australian Hospital Ships during the War of 1939-1945". He said that when men began to sail on the sea they soon began to fight upon it, but, stirred by some compassion, brought help on the sea to the stricken in battle. In the 1914-1918 war Australian land forces had used both temporary sea ambulance transports ("black ships") and hospital ships and carriers ("white ships") to return sick and wounded to Britain or to Australia. During the 1939-1945 war returning transports had been used, and fully equipped hospital ships were also provided, their services being increasingly augmented by aircraft in the later war years. Though hospital ships had never been actually pooled between the Allies, British, New Zealand, Australian and American ships cooperated in their services.

Four ships had been specially equipped as hospital ships: *Manunda* and *Wanganella*, converted from passenger liners; *Oranje*, a palatial Dutch liner, converted, run and maintained by the Netherlands Government till Australian operations centred on the Pacific area; and *Centaur*, designed for use in the islands, but lost through enemy action on her first trip. For the long-range work to and from an Australian base hospital ships were desirably of 9000 to 10,000 tons gross register, of reasonable speed, capable of over 14 knots and with a not excessive draught. A good range had been essential; this depended in part on fuel, and in part on water which was needed for wards and laundry. Distillation had been simply done with diesel plants, which also ensured an ample supply of electric power. Adequate ventilation was essential, especially in the tropics. Cots required sufficient space; some swinging types had been used, but the majority were probably best fixed, or at least capable of being immobilized. The theatre block needed plaster and X-ray rooms, and special lighting. Segregation of patients suffering from infectious disease, tuberculosis and mental affections was essential. Most important was the prime consideration of rapid loading and unloading, for which structural alterations of stairways, lifts and corridors might be required; special stretchers such as the Neil Robertson and Stokes type should be carried, and hoists to facilitate lifting from wharves or barges. The possibility of abandoning a ship also called for ample supply of lifeboats and rafts.

An Australian hospital ship had been run as an army unit; the senior medical officer was the officer commanding troops and administration; the Navy controlled maintenance and alterations and determined movements, and the Merchant Navy sailed the ship. *Oranje* had been unique in organization: the Netherlands East Indies Government assumed responsibility for the ship, control of its staff and medical attention, and the Australian and New Zealand Governments maintained small liaison staffs on board. The ship was in fact a gift to Australia and New Zealand and transported their sick and wounded from the Middle East and Far East to their home bases.

In the Middle East casualties had been moved by sea by Australian hospital ships, by the Netherlands ship, to some extent also by the New Zealand hospital ship *Maunganui*, and, for short runs in the Mediterranean, by British hospital ships and by sea ambulance transports. Of the last mentioned, *El Amira Fawzia*, belonging to the Egyptian Government, had been used as an armed transport carrying sick and wounded, troops and prisoners. Troop transports returning to Australia had also carried men not requiring special care. Medical officers for these transports were usually those going to or returning from the Middle East, and others needed for short runs were obtained from an Australian Army Medical Corps pool.

Some casualties had occurred among these ships. *Manunda* was in some danger while anchored in Lake Timsah while air raiders were dropping mines. *Vita*, a British hospital ship, was damaged in an air attack in Tobruk harbour at 5 p.m. on a clear bright afternoon in April, 1941, and had to transfer patients to another ship and was later towed to Alexandria. *Karapara*, another British hospital ship, was attacked in May, 1941, and left Tobruk with only one engine working. Three sea ambulance transports were lost. *Chantala*, of 3500 tons, was sunk by a mine, the explosion killing 120 prisoners, *Chakdina* was torpedoed, so too was *Shantein*, with the loss of a medical officer and five orderlies.

The obvious dangers of the Tobruk run had determined a change of policy, and after the middle of 1941 destroyers and other small naval ships took reinforcements and supplies to Tobruk, and returned casualties to Alexandria. During the evacuation of Greece and Crete the British and Australian naval ships had done splendid work at high cost in both ships and men. Some hazardous trips were made also by hospital ships and transports: naval authorities felt that the risk was too great for hospital ships alone to handle the sea transport of casualties from Greece and Crete. When the debacle of Malaya altered the course of events in the Far East, hospital ships had been asked for towards the end of 1941, and *Manunda* was sent to Darwin, but not till January, 1942, when the position in Singapore was bad. Still in Darwin on February 19, 1942, *Manunda* was damaged in the Japanese air attack and lost some of the military and ship's personnel. After a strenuous day of service the ship was hastily repaired enough to permit her sailing with over 200 patients. A less tragic incident in her career had occurred in Milne Bay some eight months later, when Japanese naval vessels entered the bay on successive nights, inspected the brightly lit ship with searchlights, and then bombarded land installations without interference to *Manunda*. *Wanganella* had cot accommodation for nearly 400 patients, and 150 emergency cots, and from September, 1941, had been busy in the Middle East and Far East; later during the Pacific War she visited the New Guinea ports, the Solomons and Borneo. One special trip had been made to Taranto to serve New Zealand troops in Italy. One emergency had occurred while the ship was in Bombay, when a serious explosion injured a number of workers on the waterfront; *Wanganella* provided two surgical teams for twenty-four hours and held patients on board for three days.

Oranje, with accommodation for 650 cot patients and high speed, had made two runs to the Middle and Far East before Japan declared war, but a proposed trip to Java to pick up civilians was cancelled. After March, 1942, the ship was financed by the British Ministry of War Transport, and at the end of the year the Australian staff was removed from the ship.

Centaur, a 3200 ton liner running to the islands, was at first planned as a hospital carrier, but after extensive alterations, including refitting the crew's quarters originally designed for a native crew, the ship had been equipped as a hospital ship for 280 cot cases. After due notification through the neutral power as a hospital ship *Centaur* sailed unescorted with the whole staff of the 2/12th Australian Field Ambulance on board, and at 4.15 a.m. on May 14, 1943, while brightly lit in the manner prescribed by the Geneva Convention, had been torpedoed, and sank in a few minutes. There were only 64 survivors, including the commanding officer of the Field Ambulance and one nurse: they were picked up by the United States of America destroyer *Mugford*. Rumours had spread about carrying arms, but they were ill conceived, for though the ambulance drivers, attached from the A.A.S.C., carried arms, there was no infringement of international law. This tragic event had increased the uncertainty felt in official quarters concerning the immunity of hospital ships from attack, and as a result *Manunda* was recalled to Sydney, and her crew dispersed on leave while the vessel was painted grey and armed. Vigorous protest followed from the Director-General of Medical Services of the Army, and after sea trials *Manunda* was reconverted as a hospital ship.

By August 30 *Manunda* was back on the run again, although she was not used much, largely owing to the use of returning transports, and particularly of aircraft to carry sick and wounded. A suggestion had been made that another smaller ship *Gorgon* would be commissioned as a hospital ship, but this was never done.

After long argument various instructions had been issued dealing with the rights of a hospital ship in the carriage of men and material, and finally on July 3, 1944, a clear statement was circulated by the Adjutant-General, strictly defining the medical units and personnel carried on hospital ships. This had in no way altered any question of policy, but interpreted the spirit of the Convention as well as the letter of the law; there were no restrictions on the patients carried.

Naval considerations were of some interest here. During the 1939-1945 war no hospital ship had been used under the ægis of the Royal Australian Navy as *Grantala* was in the 1914-1918 war. Direct control by the Navy had been advocated by Surgeon Captain Carr, Director of Naval Medical Services, in 1940, and again in 1941 with reference to *Wanganella*, but the Director-General of Medical Services of the Army was not willing to surrender the ship as an Australian Army Medical Corps unit. Later problems

arose concerning the transfer of casualties from naval ships in dangerous areas, and the suggestion had been made that the fast escort ships could be used under protection of the Geneva Convention. Amphibious landings made under cover of the United States of America Navy had provided for armed transports, and for the arrival of hospital ships on a predetermined day of the operation. Up to this point treatment was given on smaller craft, such as "L.S.T's.", or in forward army medical units.

After the cessation of hostilities hospital ships had played an important part in returning sick prisoners of war from overseas: *Manunda*, *Wanganella* and *Oranje* were so engaged. Naval ships took off prisoners from some smaller areas such as Ambon.

Dr. Walker explained that several considerations affected the safety of hospital ships. Lighting had to follow exactly the formal directions, it being remembered that a red cross, 16 feet square, was hardly perceptible at 8000 feet and showed only its white background at 10,000 feet. Blacking out a hospital ship did not contravene the Geneva Convention; this action might be taken if it was held that a lighted ship endangered others, but it removed all right of complaint in the event of damage. Argument had arisen over the wisdom of not lighting hospital ships during the war; a blacked-out ship had narrowly missed damage in the Gulf of Suez. Anchorage was important; it should not be too close to a belligerent area, a safe distance being suggested of not less than 40 miles. Australian hospital ships had scrupulously observed international law, and were therefore entitled to full protection. Though this had not always saved protected ships from damage and even loss of life, it would be tragic to lose faith in hospital ships: even with the vast expansion of air transport they still had their place.

LAMBERT C. ROGERS (Wales) suggested that in future hospital ships might act as floating hospitals, as in his own experience as consultant to the British Pacific Fleet. He was flown to the ship and there operated in comfort out of range of malarial infection, while hospitals on shore had much less pleasant and efficient surroundings. Professor Rogers also asked whether there was proof of the exact manner of the sinking of the *Centaur*.

Dr. Walker, in reply, said that he had not yet been able to obtain the official answer to the latter question. He pointed out that suggestions had been made for the use of a British hospital ship as a floating hospital during the first Libyan campaign, but this was not done.

K. M. BOWDEN (Victoria) described from personal observation the dangerous nature of the anchorage assigned to the *Manunda* in Darwin harbour, and pointed out the responsibility on the command of a hospital ship when many seriously ill and wounded men were held on board.

Religio Medici.

COLIN MACDONALD (Victoria), in opening his paper on "Religio Medici", said that he had been introduced to that work and to other writings of Sir Thomas Browne by those of William Osler. It was not as a renowned physician that he remembered Osler, but as the great humanist and classical scholar, and Osler's hero, the man who inspired him above all others, was the seventeenth century Norwich physician, Thomas Browne. Dr. Macdonald had never been able to fall completely under Browne's spell, though knowing he possessed a highly imaginative mind and was on occasions an unrivalled master of a stately rhythmic style; but too often he found that style highly artificial and much too Latinized. Yet he recognized that Browne's prose was to a large extent the state of the English language at that time.

Dr. Macdonald said that when in Britain in 1950 he had walked once again in Oxford, where Osler walked, to see if he could capture more completely the secret of Browne's enthralment over Osler. In describing Sir Thomas Browne's skull, Dr. Macdonald said that in the year 1840 Browne's coffin was accidentally opened and the skull removed from it. The skull lay in the Norwich hospital until 1904, when Osler had a casket and pedestal made to hold it, and in 1922 its identity was finally established. The skull was then reinterred in the Church of St. Peter Mancroft, Norwich, after plaster casts had been made at the Royal College of Surgeons. It had a remarkably low and sloping frontal region. Its shape supported the conclusion that the correlation of the superficial head and brain characters with mentality was so poor a correlation as to provide no basis for prognosis of value. It also proved that of the many engravings purporting to be portraits of Sir Thomas, only one or two were originals. This indicated that the evidence of old engravings had to be very critically considered before it could be accepted.

Dr. Macdonald said that it had been suggested that every medical student should read "Religio Medici"; but he felt that, because of its frequent obliquity of thought and hyperlatinistic style, it would always have an intensive rather than an extensive style. But the same "Religio" greatly influenced the whole life of Osler, who in turn profoundly influenced another great man in Harvey Cushing. Osler had died but a short while ago, but so greatly had the world changed in its spiritual and material aspects that Dr. Macdonald felt that, by the gauge of contrasts, he appeared to have had his being in a remote generation.

W. L. CROWTHER (Tasmania) described how William Osler, one of the great admirers of Sir Thomas Browne, indoctrinated students in classics during his clinical teaching.

T. E. F. HEALE (Victoria) agreed that most readers today found Sir Thomas Browne hard to read, except perhaps in "Urn Burial".

Several other speakers pointed out the desirability of encouraging medical students to acquire a cultural background.

M. KELLY (Victoria) inquired whether Osler's activities as an ardent collector of rare books and first editions had decreased his output.

Dr. Macdonald, in reply, pointed out the large output of Osler, as exemplified in Dr. Heale's collection in the hobbies exhibit, and also the relative leisure in clinical work permitted by Osler's position as Regius Professor at Oxford.

Dr. John White.

K. M. BOWDEN (Victoria) read a paper entitled "Dr. John White and Early Medical Conditions in Australia". (This was in place of a paper on "The History of Anatomical Illustration", which was to have been read by Associate Professor K. F. Russell. Professor Russell was unable to read his paper owing to illness.)

H. BOYD GRAHAM (Victoria) pointed out the need for a book on the subject of Dr. Bowden's contribution.

B. GANDEVIA (Victoria) asked what basis there was for the use of sarsaparilla in scurvy.

Dr. Bowden, in reply, said that the antiscorbutic properties of sarsaparilla had only an empirical basis, but it seemed to have been effective.

A Memorable Year.

F. E. LITTLEWOOD (Victoria) said that the year 1887 was memorable as the twenty-fifth anniversary of the foundation of the Medical School at the University of Melbourne; in that year women were for the first time allowed to study for a medical diploma at the University, and in that year there arrived in Australia two remarkable professors, David Orme Masson and Baldwin Spencer, who then started their teaching at the University of Melbourne. Dr. Littlewood referred to the medical course in those days, and gave a brief account of the out-patient department and operating theatre at the Melbourne Hospital. A remarkable fact was that no less than eight of the teachers at that time were subsequently knighted. The early part of that period was what might be called pre-aseptic, before the great discoveries and researches of Pasteur and Lister became fully known and accepted. Dr. Littlewood then mentioned some social activities, "hare and hounds" or paper chase, a ball in the Melbourne Hall, theatre nights,

and a dinner given by Mr. J. G. Beaney to his dressers. Contrasting those early pre-aseptic days with the present, Dr. Littlewood finally wondered, if progress was made at the same rate in the next sixty-five years, where it would lead; he thought perhaps the answer might be "*sic itur ad astra*". Dr. Littlewood showed a few lantern slides illustrating the University of Melbourne, the Melbourne Hospital (about 1900), photographs of some leading surgeons at that time, and a group photograph of the 1902 final-year medical students.

The Advent of Women into Medicine.

ISABELLA YOUNGER ROSS (Victoria), discussing the advent of women into modern medicine, said that it had begun in America, where the English-born Elizabeth Blackwell graduated at a small medical college in the State of New York. The movement spread to England, where Dr. Blackwell's lectures on medical subjects inspired Elizabeth Garrett Anderson to follow in her footsteps and take her licentiate of the Society of Apothecaries in England in 1865, and her doctorate in medicine at the University of Paris in 1870. Dr. Anderson was the first and only woman member of the British Medical Association for twenty years.

Referring to Victoria, Dr. Ross said that the first medical women to apply to the Medical Board for registration came from American women's medical colleges. The first in 1865 did not follow up her successful application. She was Wilhelmina Fergusson, who had come to Australia as ship's surgeon on a freighter. It had to be presumed that she sailed again for her native land. In 1885 the second applicant was unsuccessful; the third in 1890 was successful —the Australian-born Constance Stone, who had gone to the United States of America to obtain the degree which her own country had denied her. To ensure success, she had taken a British degree, the doctorate in medicine of the University of Toronto, and the licentiate of the Society of Apothecaries in England.

Dr. Ross said that the next names were those of a group of women, the first women graduates in medicine of the University of Melbourne. The story of how they had come together and prevailed on the University of Melbourne to study medicine, and their handling of the successive problems which arose, showed great initiative, careful planning and wise foresight. A notice in the daily Press brought the seven young women together. A letter to the University Council from the father of two sisters who were applying, and the personal interviewing of every member of the council made the venture a success. The first to graduate (November 6, 1891) were Dr. Clara Stone, now living in retirement, and Dr. Margaret Whyte, who had died a few years before the eighth session of Congress.

F. E. LITTLEWOOD (Victoria) added some of his personal recollections to the paper of Dr. Younger Ross.

The Discovery of Western Australia with Some Early Medical History.

B. C. COHEN (Western Australia) said that the life history of medicine in Western Australia was arbitrarily divided into periods from the discovery of Western Australia until the colonization in 1829, next till the establishment of a convict settlement in 1850, then until a Medical Board was established in 1870, and again when the Western Australian Branch of the British Medical Association was started in 1898. The discovery of Australia commenced with the Portuguese Magellan in 1520. Descaliers called it "*Java la Grande*". Later Dutchmen such as Dirk Hartog, Houtman, Edel, Tasman, Nuyts and Vlaming left their mark. The advent of the first medical man was most inauspicious. Cornelis turned the wreck of the *Batavia* to advantage by murdering nearly all the survivors and attempting to become a pirate. The plot was nipped in the bud by Pelsart. The first Englishman to land on a buccaneering voyage was the medically-minded Dampier, who wrote many medical and zoological works. His descriptions stimulated his cousin, Dr. Lemuel Gulliver, who, tired of private practice, went to sea and was shipwrecked according to location somewhere along the south-west of Western Australia. He had two adventures there, one with the Lilliputians and the other off Albany with the Houyhnhnms —the first but not the last Sandgroper to have dealings with horses. Five doctors accompanied Vancouver, who learned about scurvy from Captain Cook. Dr. Menzies achieved much fame as a naturalist.

Dr. Cohen went on to say that the French doctors contributed considerably to early Western Australian development—Dr. l'Haridou, Dr. Bellefin, Dr. Taillefer (decorated by Napoleon), Dr. Péron, Dr. Leschenault, Dr. Renard, Dr. Boisdeliot and Dr. Laballardière. Most of those names were names along the Western Australian coast. The Englishman Flinders, from whom originated the name "Australia", surveyed the Western Australian coast. He was the son and grandson of Lincolnshire doctors, and abandoned medicine for the sea, having read William Dampier's account of how he had helped to maroon "Robinson Crusoe". The gallant Dr. Hunter accompanied Flinders. Fear of French annexation stimulated the Home Office to colonize Western Australia. Many doctors had come out on the *Parmelia*, the *Success* and the *Challenge*. They landed on the site of the proposed new oil refinery. With their advent the first part of the history came to a close.

H. BOYD GRAHAM (Victoria) thought that more might be done to preserve and publish the results of research into the various phases of the early medical history of Australia. This would make valuable source material for later work.

William Thomson and the Contagionist Doctrine.

BRYAN GANDEVIA (Victoria) read a paper in which he discussed William Thomson and the contagionist doctrine in Melbourne. He said that William Thomson, M.R.C.S. (Edinburgh, 1843) was born in Paisley about 1819. He made his first trip to Australia as ship's surgeon to the *Wanata* one hundred years ago, and after several subsequent visits he commenced practice in South Yarra, Melbourne. He rapidly achieved success and was for a time editor of the Medical Society's *Australian Medical Journal*. Although his professional ability was highly regarded and he was kind and generous to his patients, he was probably possessed of some intellectual arrogance and was certainly intolerant of criticism. These factors militated against the acceptance of his advanced views on the roles of contagion and germs in epidemic disease, and also resulted in a serious breach with the Medical Society. During the ten years before his death in 1883 he wrote voluminously on the ætiology and epidemiology of typhoid fever, phthisis, diphtheria and diseases of stock, and on the Baconian authorship of Shakespeare's works. Dr. Gandevia said that there was much to be gained by study of the history of disease not only in time but in space, and the Australian field was admirably suited to such study. Thomson's views were therefore examined in relation to the history of the contagionist and germ theories and in relation to the prevailing views in Melbourne. Relevant observations which he made on typhoid fever included the following: (i) The disease might be spread by ambulant patients and by contamination, notably of the milk supply. (ii) Disinfection of fæces and fomites were vital measures in controlling spread. (iii) There was no evidence for "spontaneous generation". Similarly, Thomson blamed contagion, by means of drying sputum, for the spread of phthisis. In a remarkable work, "The Histopathogeny and Chemistry of Tubercle" (1876), he had stated categorically that the disease was caused by a germ and he outlined the chemistry of caseation in the light of the known facts of organic chemistry and bacterial metabolism. In terms of his germ theory he explained the pathology and morbid anatomy of tuberculosis, indicating the part played by lymphatic and vascular spread. Dr. Gandevia thought that it was worth noting that he advocated experimental search for substances capable of "killing parasitic particles in living tissue without at the same time destroying its own integrity". Thomson's jubilation at Koch's discovery of the tubercle bacillus six

years later was tempered by his own claim for priority in certain respects, notably in regard to his explanation of its mode of action. Had he been less egotistical and less scornful of his opponents, he would have been a less colourful and arresting personality, but he might well have attained a greater measure of honour, at least in his own country.

Sir James Mackenzie (1853-1926) and the Laws Governing Symptoms.

Michael Kelly (Victoria) read a paper on Sir James Mackenzie and the laws governing symptoms. He said that the professional life of Sir James Mackenzie, who was born in 1853, divided itself naturally into three periods: (*a*) the general practice at Burnley, in Lancashire (1881-1907); (*b*) the period spent by him as a consultant in London (1907-1919); (*c*) the St. Andrews period (1919-1925). The last year he had spent again in London, summarizing his work for posterity and observing the slow onset of his own death from coronary disease. In general practice he soon began to keep accurate records of all the symptoms complained of by his patients, with a view to discovering their prognostic value. His observations on the heart were but an incident in this wider search. He took tracings of the radial pulse and then of the jugular pulse; no physiologists could interpret the jugular tracings, so he interpreted them himself. By combining the two he found that he could tell what the different chambers of the heart were doing.

Gradually Mackenzie differentiated the dangerous from the less dangerous murmurs and irregularities. The journals rejected most of his papers, so in 1902 he published his book, "The Study of the Pulse". The number of his contributions to the literature increased, and his fame spread abroad. In 1907, at the age of fifty-four years, he went to London, where his book, "Diseases of the Heart", was published. This gained him a sudden fame, and he found himself a Fellow of the Royal Society, a knight, and in charge of a new department of cardiology at the London Hospital.

But Mackenzie was not interested in fame. He was still interested in the meaning of symptoms, and a new discovery was of no value to him if it did not lead to further discoveries. Always he was seeking new knowledge of the prognostic value of symptoms—knowledge "absolutely necessary to the intelligent practice of medicine". He kept insisting that the future of medicine lay with the general practitioner, who alone was able to study his patient for half a lifetime. He decided in 1919—when at the height of his fame as a consultant—to return to country practice and he set up at St. Andrews a research institute for the study of symptoms. Dr. Kelly declared that his move had been misunderstood by many who were not conscious, as Mackenzie had been conscious, of the fundamental gaps in the knowledge of medicine.

Mackenzie had always insisted that a disease was but a reversal of one of the laws of Nature; that the laws of Nature on discovery would prove to be simple, as the physical laws of Nature were simple. In the last year of his life he gave a simple statement of these laws as they appeared to him. Dr. Kelly summarized them briefly as follows: (i) All vital activities were due to impulses from living cells. (ii) The cell impulse was a special form of energy, totally unlike electricity. (iii) Living cells were continuously discharging energy or renewing it. (iv) When cells were grouped to form an organ this law of fluctuation held, and the activities of the organ were controlled by cells outside it. (v) The function of every organ was therefore susceptible of influence by other structures or organs. (vi) Those other structures with the organ constituted the elements of a reflex arc, and symptoms were due to a disturbance of some element in this reflex arc.

Those principles did not appear to be very profound, but there was genius in their simplicity. On their basis Mackenzie had been able to attempt a natural classification of symptoms, in which, in its apparent simplicity, was hidden an entirely new conception of medicine. However, because Mackenzie was no longer alive to propagate them, his new principles had atracted very little attention.

Section of Medicine.[1]

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Honorary Secretary: W. E. King, M.D., B.S., M.R.C.P., M.R.A.C.P., Victoria.

President's Address: Mitral Valve Surgery.

J. Kempson Maddox (New South Wales) in his president's address discussed his medical experiences in the surgery of mitral stenosis. He said that from April, 1951, to June, 1952, 130 sufferers from mitral stenosis had been reviewed in regard to their suitability for mitral valvotomy. Fifty-nine had been submitted to cardiac catheterization and 33 had been operated upon. Those selected for surgery all showed unmistakable clinical and laboratory evidence of pulmonary hypertension, and were devoid of significant aortic or mitral regurgitation. The immediate operative and post-operative mortality was 10%, which compared favourably with overseas experience. Approximately half of the patients were between thirty and forty years of age. None were under the age of twenty or over the age of fifty years. All exhibited Grade II or Grade III heart failure, according to the criteria of the New York Heart Association. At catheterization, intracardiac pressures and pulmonary artery and pulmonary capillary pressures had been estimated at rest and after exercise. Cardiac output, arterio-venous oxygen differences in the systemic circulation and oxygen consumption had been determined before and after exercise. The physiological status of each group closely corresponded with the clinical assessment. No patient with a mean pulmonary artery pressure of under 30 millimetres of mercury had been recommended to the surgeon. Dr. Maddox gave a description of the pre-operative preparation and post-operative course and complications from the medical point of view. He said that after elimination of eight patients operated upon too recently for assessment, there remained eight whose condition was much improved, 11 who manifested improvement and three who had not improved; there were three fatalities. Three patients who had undergone cardiac catheterization after operation showed falls of approximately 50% in their pulmonary mean pressures. Dr. Maddox concluded that mitral valvotomy could certainly

[1] The meetings held by the Section of Medicine with the Section of Surgery and the Section of Radiology and Radiotherapy have been recorded.

improve the physical efficiency and probably the prognosis of selected sufferers from mitral stenosis.

F. H. Mills (New South Wales) discussed the surgical treatment of mitral stenosis in relation to the same 33 patients as those mentioned by Dr. Maddox. He restricted his remarks to the technical points and operative findings, and a few generalizations which reflected the strictly surgical point of view. After a brief description of the method of anæsthesia and the procedures carried out during operation to record the progress of the patient's condition, Dr. Mills went on to describe the surgical aims and technique. He said that the diseased valve cusps adhered in the line of the former commissures, and the thickening of the margin of the residual opening prevented any valve action. The object of treatment was to separate the adherent cusps, free them in their full length and allow them to resume the valve action. That operation had been called commissurotomy. The separated cusps, though often scarred and nodular, could be felt to move and act as a valve, usually without any regurgitation. Dr. Mills then described his operative technique and various resuscitation measures used in conjunction with it, and referred to the operative findings in the series of 33 cases. In a concluding general discussion, he said that the surgeon could learn to assess the outlook of the patient accurately as he palpated the valve after commissurotomy and estimated the degree of its dilatation and function; in only about 70% of the operations was he really satisfied. Numerous complications frustrated him and endangered the patient. The complications were secondary effects, the results of long-standing obstruction to the mitral valve. The comparative ease, safety and efficiency of operations at an earlier stage led to the conviction that delay was harmful. In the series under discussion, many patients had very advanced disease and many were aged forty or more years. Dr. Mills said that the operation was in its infancy, and "salvage cases" must be attempted, but the operation's efficacy should not be judged by them. Technical advances were certain to overcome some difficulties. The instrument devised in Melbourne (the operating cardioscope) might solve many problems.

C. J. Officer Brown (Victoria) said that operative relief of mitral stenosis was now an established procedure. Many long-cherished principles of diagnosis had been upset by the results of operative exposure, and new standards for the clinical assessment of patients were required. The ideal patient for valvotomy should be between twenty-five and thirty-five years of age with a normal-sized heart with regular rhythm. There should be no evidence of mitral regurgitation or of aortic disease and no history of embolism or of right-sided heart failure. The effects of obstruction should still be borne by the left atrium and the lungs, and pulmonary congestion, in one or more of its many guises, should indicate increasing pressure in the pulmonary capillaries. Many patients had long passed that favourable stage when they were first considered for operation. They were desperate for relief and willing to accept any risk which offered a prospect of improvement, and until the unfavourable features could be assessed more accurately than was possible at present, any patient in whom mitral obstruction appeared to be the major disability should be accepted. Dr. Officer Brown said that at the Alfred Hospital they had operated on 23 patients. Three of those patients died; each had a fibrillating heart and had clot in the appendage or atrium at the time of operation. With four patients operation was unsatisfactory. Sixteen patients survived a satisfactory operation and were improved. Valvotomy was performed in one woman who was four and a half months pregnant, and she then went to term without incident. Two other pregnant women were awaiting operation at the present time, and it was believed that valvotomy should be considered as an alternative to termination of pregnancy in suitable cases.

J. H. Halliday (New South Wales) said that one big problem was the assessment of the degree of mitral regurgitation. Within limits he thought that this could be judged by (i) the type of left ventricular impulse, a significant thrust indicating considerable regurgitation, (ii) the presence of left ventricular preponderance as seen in the electrocardiogram, (iii) the type of atrial movement seen with the patient in the left oblique position during "screening", a systolic expansion of the left auricle indicating considerable regurgitation, (iv) the type of systolic murmur, a loud, high-pitched murmur indicating mitral regurgitation, although a less significant murmur did not exclude it.

E. F. Gartrell (South Australia) asked how Dr. Maddox determined the degree of mitral regurgitation, and asked Dr. Mills if he thought he could assess the degree of regurgitation at operation by feeling the flow of blood with the finger. He also asked Dr. Mills how long he persisted in attempting to separate the valve cusps with the finger before resorting to the knife.

M. C. Davis (Victoria) asked if patients with mitral regurgitation should not be included in the operative series if clinical observation showed a steady deterioration of their condition. He pointed out that Dr. Officer Brown's first patient had been doing heavy manual work involving the lifting of fourteen tons a day from wharf to lorry for six months before his clinical condition deteriorated sufficiently to warrant valvulotomy.

D. J. Thomas (Victoria) said that multiple slit kymograms enabled one to determine auricular movement; he thought that that technique might prove a valuable aid in assessing cases for operation, with regard to the degree of mitral regurgitation.

C. Fitts (Victoria) deprecated the use of the term "tight" mitral stenosis to imply a crippling cardiac condition, and mentioned the case of a man, aged seventy-six years, who was found to have this condition at autopsy, but had nevertheless lived a fairly active life.

R. D. Wright (Victoria) said that it was usual with mitral stenosis to have an increased blood volume, and he wondered whether that increase paralleled the degree of stenosis, and whether the relief of the stenosis caused a return of the blood volume to normal.

Dr. Maddox, in reply, said that he thought that the size and degree of movement of the left ventricle gave the best indication of the extent of the mitral regurgitation. So far kymography had not been of any great assistance, but he thought that the method could be further developed. He agreed with Dr. Fitts that people could live for years with a small mitral orifice, and that the senile group of mitral stenotics had not as yet been critically reviewed. He agreed with Dr. Davis that the rate of clinical deterioration of a patient should come into consideration in the assessment of patients for operation, but it must be realized that, even with mechanical relief of valvular obstruction, myocardial degeneration might lead to failure. In reply to Professor Wright, he said that blood volume increased with any type of congestive cardiac failure, but he did not know of any studies in its relationship to mitral stenosis.

Dr. Mills, in reply, said that it was easy, with a finger in the auricle, to feel a regurgitant stream even when it was small, but it was difficult to assess the degree of regurgitation. He said that he made not more than three attempts, each of two or three seconds' duration, to dilate the valve with the finger before deciding that resort had to be made to the knife.

Clinical Studies on Pancreatitis.

E. G. Saint (Victoria) discussed pancreatitis. He said that acute and relapsing pancreatitis were not uncommon diseases and would probably be more frequently diagnosed in practice if more reliable diagnostic tests were available. At the Clinical Research Unit of the Royal Melbourne Hospital 22 cases had been studied between November, 1951, and July, 1952.

Dr. Saint said that cases of acute pancreatitis fell into three main ætiological groups: a group of two types due to infection with a virus (mumps and infectious hepatitis); a group associated with cholelithiasis; an important group composed of hypertensive alcoholic male patients without associated gall-stones. Conservative

treatment of pancreatitis was recommended, with the use of pethidine as an analgesic, the administration of large doses of antibiotics, and accurate replacement of electrolytes.

Dr. Saint went on to say that chronic relapsing pancreatitis occurred most commonly in males, who frequently had a history of alcoholism. After years of intermittent pain, pancreatic deficiency with steatorrhœa, loss of weight and diabetes with calcification of the gland might supervene. Surgical treatment of such patients posed a problem of formidable difficulty; either sympathectomy or pancreatico-duodenectomy was recommended. Several female subjects who had previously had cholelithiasis and had undergone cholecystectomy had recurrent attacks of mild pancreatitis, thought to be due to biliary reflux. Diet alone was successful in controlling the pain of many such patients.

Dr. Saint finally said that pancreatitis might be the end result of a variety of ætiological influences. The mechanical effects of gall-stones, alcoholism and malnutrition, hypertensive vascular disease and virus infections had all been encountered in the present study. Rational treatment had to be based on the appraisal of all those diverse causative factors.

PROFESSOR C. H. BEST (Toronto, Canada), in opening the discussion, said that it had recently been discovered that hypophysectomy resulted in rapid degeneration of the acini of the pancreas, and that that was the first example of a trophic effect of the pituitary on a gland of external secretion. Experimentally it had also been found that administration of methionine to an animal produced an acute lesion of acinar tissue of the pancreas, apparently through interference with normal methionine metabolism. He was surprised at the high incidence of interference with internal secretion of the pancreas by acute and chronic pancreatitis, as shown by Dr. Saint. In dogs a tenth of the pancreas had to be removed before the diabetic state could be induced.

DR. AVERY JONES (United Kingdom) said that he was glad to hear Dr. Saint mention gastric suction as a means of treatment in acute pancreatitis. He mentioned two ways of decreasing pancreatic activity; one was the use of atropine, and the other gastric suction, which decreased the amount of acid entering the duodenum. He said that the ætiology of acute pancreatitis was still a mystery, but in his opinion the mechanical factor was highly important, and attacks were likely to be produced by obstruction of a duct occurring at the time of maximum secretion of the gland. There was the possibility of the rupture of a duct into a pancreatic vein, initiating the condition. In the diagnosis of chronic relapsing pancreatitis, it was important to see the patient at the onset of an attack, and to estimate at that time the urinary diastase. He said that he had met with two cases of acute pancreatitis occurring post-operatively after partial gastrectomy, and wondered whether Dr. Saint had had a similar experience.

IAN WOOD (Victoria) said that the diagnosis was frequently missed in the initial stages. He pointed out that everyone was trying to find a common cause of acute and chronic pancreatitis, but it should be recognized that there were probably a number of ætiological factors, just as had proved to be the case in liver disease.

J. M. DWYER (South Australia) said that he had been struck, in performing autopsy examinations in 20 cases of pancreatitis, by the absence of any sign of obstruction. He had noticed distension of the lymphatics with chyle in subjects who had died within two hours of a meal, and wondered whether that might have a bearing on the onset of acute pancreatitis, which generally had that relationship to food.

R. V. SOUTHCOTT (South Australia) asked if any studies of serum zinc content had been made as an aid in the investigation of pancreatitis.

Dr. Saint, in reply, said that already a number of factors, such as obstruction, malnutrition, infection, hypertension and hormonal disturbances, had been recognized as having an ætiological bearing on pancreatitis. He had not met with cases of pancreatitis following subtotal gastrectomy, and thought that diagnosis in such cases would be difficult on clinical grounds. He suggested that it would be worth while making frequent urinary diastase estimations in the case of patients who had undergone partial gastrectomy, in an attempt to detect such a complication. He said that in the battery of investigations which he had performed on his patients, he had not included serum zinc estimations.

The Early Diagnosis of Primary Bronchogenic Carcinoma.

H. MAYNARD RENNIE (New South Wales) discussed the early diagnosis of primary bronchogenic carcinoma, which, he said, had been proved to be curable by lung resection. He pointed out that no other form of treatment could offer a comparable hope of cure, but the practical results of surgery had been disappointing. The reasons were bound up with delay in diagnosis, for which the patient, the general practitioner, the physician or the radiographer might be responsible. Dr. Rennie said that in most cases, if a definite diagnosis could be made on clinical and radiological evidence alone, it was already too late to cure the patient. All needed to be reminded that cancer of the lung was occurring more frequently, and that any man over the age of forty years, particularly if he was a heavy smoker, was a candidate for the disease. If the diagnosis was to be made in time, it was necessary to be quick to realize the significance of slight variations from the normal. After giving a brief account of the morbid anatomy of the condition, Dr. Rennie drew attention to certain significant features in the history and physical examination. He said that cough occurred in at least 80% of cases, either as a new symptom or as an alteration in the character of a chronic cough. Hæmoptysis, always a danger signal, might appear early in a small proportion of cases, but occurred at some stage of the disease in approximately 50% of cases. Other important symptoms were pain or discomfort in the chest, shortness of breath and wheezing, particularly a local wheeze. In a man over the age of forty years, the respiratory infection that was slow to disappear demanded further investigation. Unresolved pneumonia was a diagnosis to be suspected. Pleural effusion, clubbing of the fingers, hypertrophic pulmonary osteoarthropathy, and evidence of possible involvement of the nervous system by metastases could all be significant signs. Discussing clinical examination, Dr. Rennie stressed the fact that the general features of wasting, cyanosis or pallor and fever might be absent in the early stages of the disease. The position of the mediastinum might indicate the presence of atelectasis. The state of the cardio-vascular system threw light on such symptoms as dyspnœa and asthma. The search for involved lymph glands was very important. Evidence of metastases might be found in the skin, the liver, or various parts of the nervous system. Dr. Rennie said that any patient suspected of having a lung cancer must be referred to the radiologist for his opinion, but it was well to remember that there were no positive X-ray signs of primary bronchogenic carcinoma. Radiologists accepted a great responsibility in giving a report of "unresolved pneumonia", or in postponing a decision. However, the clinician must accept the final responsibility for any delay in reaching a diagnosis. Every patient suspected on clinical and radiological grounds of having a bronchogenic carcinoma should be examined by bronchoscopy, and if possible, a biopsy should be taken. If a biopsy was not possible, secretion or washings from the tumour or affected area should be collected for examination. The pathologist might prefer coughed-up specimens of sputum for cytological examination. With suitable care, positive findings from cytological examination had been reported in up to 90% of cases, and false positive results were rare in the hands of experienced pathologists. Dr. Rennie went on to say that every patient with an indeterminate lung lesion, especially if he was over forty years of age, should have a thoracotomy with a view to pneumonectomy. Even then, in some cases, a biopsy might be required even if it involved resection. In conclusion, Dr. Rennie said that, until proved otherwise, such lesions as unresolved

pneumonia, recurrent virus pneumonia, hæmoptysis and pleural effusion must be regarded as having a possibly malignant basis, even if lung resection was necessary to provide proof. With the object of seeking the help of the radiologist to find the lesion before symptoms appeared, Dr. Rennie suggested the following points for consideration by the Section of Radiology: (i) that every radiologist be asked to "screen" the chest of as many of his patients as possible; (ii) that all public hospitals be asked to arrange for routine X-ray examination on miniature film of the chest of all patients admitted, a picture on a full-size film being taken if any abnormality was noted; (iii) that mass radiography surveys be encouraged where possible, particularly of the male members of the community, and that a picture on a full-sized film be taken if any abnormality was noted.

M. R. Joseph (New South Wales) said that, whereas X-ray pictures were the greatest single aid in the early diagnosis of bronchogenic carcinoma, negative X-ray findings in the presence of any suggestive symptom did not exclude its presence. Although the commonest cause of hypertrophic pulmonary osteoarthropathy was probably a bronchogenic carcinoma, that sign should not be regarded as pathognomonic of the disease, as he had seen it in two cases of chronic pulmonary tuberculosis. He said that cytological investigation of the sputum was of undoubted value in the diagnosis of bronchogenic carcinoma, but the report of the pathologist had to be interpreted with caution.

L. E. Hurley (Victoria) asked for further information regarding the effect of smoking on the development of bronchogenic carcinoma.

R. B. Maynard (Victoria) said that cytological findings in the sputum had to be interpreted very cautiously. In a series of cases which he had studied at Heidelberg, only two "false positive" results had occurred, but he was very careful in reporting positive findings. He said that when positive findings were obtained, there was usually some blood, and that might well indicate that the diagnosis had already been made too late.

L. Hetzel (South Australia) asked whether bronchial washings as well as sputum were being used for cytological diagnosis in Sydney.

Dr. Rennie, in reply, agreed that the X-ray findings might be normal in a case of bronchogenic carcinoma. He thought that hypertrophic pulmonary osteoarthropathy was pathognomonic of bronchogenic carcinoma, and that patients with tuberculosis showing that sign might also have a carcinoma. He thought that there was no doubt about the relationship of smoking to bronchogenic carcinoma, but stressed the fact that the smoking had to be heavy, and that bronchogenic carcinoma did also occur in non-smokers. In reply to Dr. Hetzel, he said that in Sydney he was using bronchial washings for cytological examination, but that pathologists generally preferred to have sputum obtained apart from instrumentation.

The Causes of Asthma.

Charles Sutherland (Victoria) said that allergy was an important factor in 70% of cases of asthma, but in the remaining 30% the causes were so obscure and the results of treatment so poor that a review of theories was imperative. Exposure to allergens might precipitate attacks in allergic subjects or infective sinusitis might precipitate attacks in others, but it was necessary to postulate an asthmatic diathesis because some patients with allergy or sinusitis never got asthma. The essential feature of the asthmatic diathesis was a hyperresponsiveness to trivial stimuli, and that hyperresponsiveness appeared to wax and wane. Important precipitating causes of asthma were exposure to allergens, infection, stimulation of "trigger areas" (reflex asthma), dyspepsia, and endocrine and emotional upsets. The importance of allergy was shown by the brilliant effects of avoidance of allergens and desensitization in allergic cases, and, similarly, suspicions regarding infection were sometimes confirmed by the great improvement after use of antibiotics. Reflex asthma was temporarily controlled by cocainization of trigger areas in the nose. Aspirin-sensitive subjects were especially difficult; the eczema-asthma sequence was common, with eczema from the age of about four to eighteen months and asthma appearing as the eczema cleared up. Intriguing mysteries were the common association of aspirin-sensitiveness with nasal polypi and, in the eczema-asthma cases, the intense sensitivity to egg-white in the eczema phase and to horse dander when asthma appeared. Other mysteries were the natural cures which followed febrile illnesses, abscess and pregnancy. Histamine could reproduce many allergic phenomena, and the enzyme histaminase was greatly increased in the blood of pregnant women. Usually two or three factors combined to precipitate attacks. Pressing needs for the future were more insight into mechanisms and causes of asthma, and more knowledge about chronic nasal infections and polypoid degeneration. Above all, was needed more complete knowledge of the physiology of man as a whole.

L. A. I. Maxwell (Victoria), who opened the discussion, said that he did not agree that as many as 20% of asthmatics failed to respond to therapy and stressed the importance of what he called maintenance therapy to prevent recurrent attacks. He agreed regarding the difficulty the rhinologist had in eradicating infection from the sinuses, especially when bronchial infection was also present. He thought that too much had been made of aspirin-sensitivity and pointed out that in the pharmacopœia of the Royal Melbourne Hospital aspirin figured prominently as a constituent of an anti-asthmatic medicine. It had been shown experimentally that aspirin lowered the sensitivity of bronchi.

G. V. Doyle (Victoria) said that allergens resided in cells and not in the serum, and there was no known way of picking them up. Skin tests would show only one type of allergic response. He asked why removal of polypi caused cessation of asthma in some patients, and he stressed the importance of the relation of infection to asthma. He said that in some cases of *status asthmaticus* large doses of para-aminosalicylic acid had succeeded in stopping the attacks.

R. H. O. Donald (Victoria) said that a lot of surgery had been performed on asthmatics which should never have been performed, but when pansinusitis failed to respond to antibiotics, operations were necessary. If the rhinologist stripped the mucous membrane the results were bad, but if proper drainage of all the sinuses was achieved, then one could expect satisfactory results.

E. R. Trethewie (Victoria) said that he had shown that sex hormones reduced the toxicity of histamine, and that an Edinburgh worker had shown the presence of powerful smooth-muscle stimulants in the serum of patients in *status asthmaticus*.

M. R. Joseph (New South Wales) asked the speaker what he considered to be the significance of the finding of sensitivity to egg albumen in infants suffering from infantile eczema and of their sensitivity to horse dander at a later age. He also asked what was the value of reports of sensitivity to substances such as horse dander in patients who had never to their knowledge come into contact with horses.

Dr. Sutherland, in reply, said that he agreed with Dr. Maxwell that aspirin was sometimes a powerful remedy. Regarding the significance of sensitivity to egg albumen and horse dander in young children, he thought that it might indicate that they handled their proteins in an abnormal way leading to the formation of unusual amino acids.

The Treatment of Acute Coronary Lesions.

H. B. Kay (Victoria) said that acute coronary lesions presented as two main groups, either as myocardial infarction or as acute coronary insufficiency, which if prolonged might lead to actual infarction. The principles of treatment of myocardial infarction were: (i) relief of pain, shock and anoxia; (ii) reduction of the work of the heart by physical and mental rest; (iii) prevention of thromboembolic phenomena; (iv) prevention and treatment of cardiac failure; (v) prevention and control of cardiac arrhythmias. Patients were nursed in the most comfortable position with the use of oxygen, sedation and a diet

of low fat and low salt content. Because of its tendency to increase autonomic reflex activity with dangerous effect, morphine should never be administered without atropine. Anticoagulant therapy, with heparin and ethylamine dicoumarin, was indicated in the treatment of all patients with severe clinical features—cardiac failure, arrhythmias or previous thrombo-embolic episodes—provided adequate laboratory facilities were available for control. The complications encountered were four in number: (i) congestive cardiac failure, which required standard measures, care being exercised in the early use of digitalis; (ii) thrombo-embolic phenomena; (iii) cardiac arrhythmias; (iv) peripheral circulatory failure. Ventricular ectopic rhythms were controlled by the use either of quinidine or of "Pronestyl". Heart block in the acute phase responded better to aminophylline and atropine than to adrenaline. Peripheral circulatory failure was due commonly to automatic over-activity or myocardial failure. The use of intravenous infusions was rarely of value, except in the treatment of patients with severe anæmia, who improved with the administration of packed red blood cells. Referring to acute coronary insufficiency, Dr. Kay said that it was important to seek and treat the cause. The commonest factor was unrecognized cardiac failure, often with emphysema. Other causes were overdosage with insulin in *diabetes mellitus*, paroxysmal arrhythmias and aortic valve lesions.

E. F. GARTRELL (South Australia) said that the subject of acute coronary insufficiency recalled to him six cases in which angina of effort was steadily progressive until pain occurred at rest. Electrocardiograms showed depression of the *S-T* segments and five of the patients later developed myocardial infarction. He pointed out that attacks might still occur despite adequate anticoagulation therapy, as while it prevented thrombosis, it did not prevent the actual occlusion of the vessel by the atheroma at a later date.

ALEX MURPHY (Queensland) asked if the speaker had had any experience in the use of papaverine. For ten years he had been in the habit of giving papaverine by slow intravenous injection in preference to morphine to patients who had suffered myocardial infarction, and he believed that it relieved pain by reducing the degree of hypoxia in the area at the periphery of the infarct.

E. R. TRETHEWIE (Victoria) said that heparin inhibited the release of potassium from injured tissue, and that might explain its effect as a vasodilator and consequent pain reliever in the cases under discussion. The value of sedation with phenobarbitone in cases of coronary occlusion was enhanced by the fact that it lowered the basal metabolic rate and also acted as a autonomic blocker.

L. E. HURLEY (Victoria) asked for further information concerning the treatment of paroxysmal tachycardia complicating myocardial infarction, and in particular wished to know to what limits it was safe to go with quinidine.

M. DAVIS (Victoria) said that he believed that death in severe cases of coronary occlusion was due in some instances to metabolic failure of the heart muscle and that the intravenous administration of vitamin B_1 and ascorbic acid was helpful.

J. H. HALLIDAY (New South Wales) urged the more frequent use of mercurial diuretics in the treatment of paroxysmal nocturnal dyspnœa and pulmonary œdema.

Dr. Kay, in reply, said that before the introduction of heparin he had had a little experience with the use of intravenous papaverine therapy, but he had not found it very successful in relieving pain. With regard to quinidine dosage he said he had never gone above 54 grammes per day and felt that if the patient did not respond adequately to the oral administration, the drug should be given intravenously in doses of eight to twelve grammes by slow intravenous drip. He agreed with Dr. Halliday that repeated small doses of mercurial diuretics were invaluable, but that large doses, such as two millilitres, might be dangerous by precipitating thrombo-embolic phenomena consequent upon excessive dehydration.

Factors which Control the Fat Content of Liver Cells.

C. H. BEST (Toronto, Canada) read a paper entitled "Factors which Control the Fat Content of Liver Cells".

D. MONK ADAMS (New South Wales), in opening the discussion, said that during the several years that he had worked under Dr. Best he had naturally heard him deliver many scientific papers, and the present one differed in no way from them in being concise, accurate and informative. He had, however, one minor criticism to make. He did not think that Dr. Best had emphasized sufficiently the major role which he, himself, had played in the discovery of choline and many of the other lipotropic factors. In 1921 Banting and Best had noted fatty livers in their insulin-treated depancreatized dogs. Later in Toronto it had been found that development of the fatty liver could be prevented by feeding raw pancreas in the diet. There the matter had stayed, until 1931, when Hershey in Dr. Best's department found that the feeding of crude lecithin would also prevent the development of the fatty livers. It was interesting to note the reason why Hershey used lecithin. At that time it was believed that fats were transported as phospholipids. Hershey considered that owing to the absence of pancreatic juice, organic phosphate was not being made available. Thus he fed lecithin to provide the organic phosphate. Best, Hershey and others then investigated the matter more fully. First, they found a more suitable experimental animal, the rat, which, when fed on a diet of high fat content, developed a fatty liver. Then they tried purified lecithin to be sure that this ability to rid the liver of excess fat (lipotropic action) was not due to some contaminant. Next Best and his co-workers split the lecithin molecule into its component parts—namely, fatty acid, glycerophosphate and choline—and fed those to a controlled series of rats. It came as a considerable surprise to more than one member of the group when it was found that the factor which prevented the development of the fatty livers was the choline moiety. Thus the discovery of the lipotropic action of choline was in no way a haphazard affair.

Dr. Monk Adams went on to say that, as Dr. Best had stated, choline cured choline deficiency, but there were several conditions that readily came to mind in which additional choline might well be required. First, there were those conditions in which, owing to the absence of pancreatic exocrine function, there was an inability to utilize protein for lipotropic purposes. Those would include such conditions as those occurring after pancreatectomy, after long-continued starvation, when the acinar cells become non-functional, and in polycystic disease of the pancreas. Secondly, choline or methionine would seem to be indicated during long-continued intravenous feeding, when the calorific intake began to approach the normal requirements. It would not seem necessary during the usual glucose infusions, because of the pseudo-lipotropic effect of low calorific intake, but when alcohol and/or the newly developed intravenous fat feeding were given, it would seem that some additional lipotropic factor was required.

Dr. Monk Adams wondered if Dr. Best would say something about this usage and also about the recently discovered lipotrope-sparing action of vitamin B_{12}. He said that many advertisements had been appearing in local and overseas medical journals regarding the use of choline in the treatment of atheroma and arteriosclerosis and even diabetic retinitis. Those familiar with the literature would remember that there was some work which did seem to indicate that choline would prevent atheroma in rabbits fed excessive cholesterol. However, investigations by Firstbrook and others had shown that choline acted in that way merely because it inhibited the animal's appetite and that exactly the same results could be obtained by reducing the dietary intake. Thus the effect was in no way a specific action of choline. Dr. Monk Adams thought that Dr. Best might like to say more about the advertisers' claims.

Lastly, Dr. Monk Adams said that with regard to the use of lipotropic factors for the treatment of the fatty

liver that was developed in individuals who had consumed excessive quantities of alcohol, he thought that the experimental evidence indicated that excessive choline did not speed their recovery, although they would not recover without the normal amount; and, of course, if alcohol and choline were taken together, no fatty livers developed. Experiments on rats suggested strongly that human beings should take plenty of protein when they consumed plenty of alcohol.

IAN WOOD (Victoria) said that he had followed patients with fatty livers by means of liver biopsy and had found that choline had produced resolution of the condition in four to six weeks. He had also found that the administration of a normal protein diet would produce similar resolution in exactly the same time. All his subjects had large fatty livers, and with diminution in the fat content as shown by serial biopsies there was a parallel decrease in the size of the liver. He asked Professor Best if the fatty liver was always a big one and if there was any store of choline precursors in the body.

D. J. ANDERSON (New South Wales) asked if any investigations had been made on the simultaneous administration of choline and carbon tetrachloride.

B. HUNT (Western Australia) asked what were the main sources of choline and what preventive measures the general practitioner could recommend against the development of cirrhosis. He said that the work of Professor Best on choline deficiency provided a ready explanation of the large fatty livers which he had observed in prisoners of war who were on a protein-deficient diet.

Another speaker asked if the administration of choline was effective in animals with fatty livers who were still having large doses of alcohol.

Professor Best, in reply, said that administration of alcohol was continued in the animals treated with choline, and despite that the liver could be restored to normal. In answer to Dr. Monk Adams, he said that vitamin B_{12} spared lipotropic factors such as choline and rendered marginal amounts of choline effective. He said that there was no evidence that choline was useful in the treatment of atherosclerosis and that the claims made for it by commercial houses were not based on experimental facts. Choline cured just one thing and that was choline deficiency. In answer to Dr. Wood, he said that in pure choline deficiency the weight of the liver was proportional to its fat content. There was no store of choline in the body apart from that contained in the lecithin of the cells, in which form it was not available for use. Lipotropic agents did not inhibit the toxic effect of carbon tetrachloride, but after the toxin was removed they would assist the recovery of the liver. As to the natural sources of choline, he stated that it paralleled the lecithin content of cells. Spermatozoa had the highest content, while meat and yeast were fruitful sources.

Section of Naval, Military and Air Force Medicine and Surgery.

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Honorary Secretary: J. Glyn White, O.B.E., E.D., M.B., B.S., Victoria.

President's Address.

MAJOR-GENERAL F. KINGSLEY NORRIS (Director-General of Army Medical Services, Victoria) in his president's address dealt with medical considerations concerning enlistments into the services. He said that the medical profession was concerned with enlistment for the services from two aspects: (*a*) the enlistment of medical officers, (*b*) enlistments generally. The adequate supply of medical officers to the armed services was a problem common to all the English-speaking countries, and in Australia with the post-war expansion of the military forces the Royal Australian Army Medical Corps was in a difficult position. Overseas the problem was partly solved by a period of national service requirements for all recent medical graduates, but in Australia this obligation was discharged during the undergraduate period. To help in a solution, the Royal Australian Army Medical Service now offered short-term commissions in the Regular Army for medical graduates to a commitment of a period of service at the selection of the medical officer of one, two or four years with a commencing salary of approximately £1400 and a gratuity of £125 for each completed year of service. It was hoped in this way to attract undergraduates to the Regular Army at the commencement of their professional career and to build up a large reserve of medical officers within the community who had been trained in Regular Army medical procedures. It was hoped that on the completion of their regular service many of those medical officers would continue to serve in the military forces and to gain promotion and further military experience while discharging their civilian duties. In the event of a national emergency there would be available a number of senior well-trained medical officers. The medical responsibilities for enlistments generally were concerned with an assessment of the ability of the applicant to discharge the various service duties. A new instruction for such assessment was about to be issued and this was based entirely on a consideration of function. Major-General Norris said that the great responsibility of such an assessment including the financial implications had been stressed over the years, with special emphasis during war periods, and he moved the following motion:

> The Section of Naval, Military and Air Force Medicine and Surgery, recommend to the Federal Council that an approach be made to the Deans of the various Medical Schools throughout Australia in order that adequate instruction in the medical examination of apparently healthy individuals who may be applicants for the services shall be introduced into the undergraduate medical curriculum.

COLONEL W. D. REFSHAUGE (Victoria), in opening the discussion, said that there were two major items which he wished to stress. He referred first to the lack of military hospitals in the peace-time army medical services organization. In the army there was a camp hospital at each large camp area; there were six functioning throughout Australia at present. Those hospitals afforded minor treatment facilities only; in other words, they took the part of domiciliary medical care in civilian life. There

were no hospitals able to provide major medical care within the army structure. All members of the army needing other than minor medical treatment were evacuated to hospitals outside the army jurisdiction—to repatriation and civilian hospitals.

Colonel Refshauge went on to say that it might be pointed out that the army, although it had the greatest numbers, was at a complete disadvantage when its medical facilities were compared with the other services. In his opinion, the advantages of having service hospitals were the following. (i) The first was to provide professional training of the junior medical officer. The army could offer little clinical work for its regular medical officers. There was no doubt that it needed as many young medical graduates as possible to have experience in the army, but they should not be asked to make a complete sacrifice of professional work because of their patriotism. It was his belief that a junior medical officer, within the period of a short-service commission, should be able to study for a post-graduate degree or diploma in similar manner to civilian life. The other rigours of the service—for example, being posted to field units, overseas areas *et cetera*—were met by the reasonable conditions of pay, leave and so forth. (ii) The second advantage concerned the time spent in hospital by patients. Unless the hospital was under army medical jurisdiction, there was no control of the number of days spent in hospital by each patient. Also, when members of the services went to such hospitals, they were treated by doctors who, quite often, had no conception of what was required of that member, physically or mentally, by his service. (iii) The third point concerned the fact that the nursing staff was essentially a part of the present-day army. Nurses staffed the camp hospitals, and the need for post-graduate and refresher training of the nurses required no argument. (iv) The military hospitals in peace would be the nucleus for the military hospitals in war and could be rapidly expanded by means of pavilion type wards. There would be no chaos such as occurred in the period 1939 and 1940, which would be certain to occur again in the event of another catastrophe. There had been no concrete evidence of the availability of military hospitals in the event of a national emergency.

Colonel Refshauge said that the second major point concerned the motion put before those present by General Norris. Before speaking to that motion, he wished formally to second it. As he had been involved continuously over the past fifteen months on that subject of medical fitness, it was only too apparent that there was a need, generally, for the medical profession to accept its responsibility clearly and boldly for the assessment of the mental capacity and emotional stability as well as the physical ability of a recruit. As the medical examiners did not always try to assess thoroughly the mental as well as the physical fitness for service, this brought disrepute upon doctors as a profession and forced the assessment into the hands of the psychologists without control by the medical services. Surely there was danger in that. It seemed to him that the remedy lay in a greater awareness of the scope and responsibility of each medical officer to examine recruits. That could be taught best in the undergraduate field.

MAJOR-GENERAL S. R. BURSTON (Victoria) said that the fact that the medical service had been able to function efficiently in the two World Wars was largely due to the fact that there had been periods of up to eighteen months in which to make full preparations and to attain full functional activity. That was not likely to happen again, and any future war was not likely to be preceded by a formal declaration and an opportunity for preparation. The training and organization of the Royal Australian Army Medical Corps therefore should be in a greater state of efficiency than that which pertained before the last war. The lack of military hospitals was a factor which had been a source of difficulty in attracting young medical graduates to the service. There was little if any chance of providing post-graduate medical training for medical officers without service hospitals. The importance of the efficient medical examination of recruits on enlistment could not be over-stressed. Major-General Burston agreed with the idea that efforts should be made to have some training in the medical examination of enlisting men incorporated in the medical curriculum. He agreed with Major-General Norris that it was very difficult to assess the fitness of recruits on a system such as the Pulheems system using a numerical allotment of points. He thought that it was difficult for young medical officers to assess the mental capacity and emotional stability of enlisted men, and that the officers most capable of making such assessments were those who had served in action with infantry battalions and had gained a knowledge of their fellow men and the conditions under which men might be required to serve. Emotional instability was one of the most infectious diseases in the army. Major-General Burston agreed with all that Major-General Norris had said, and wished him success in achieving the objectives discussed.

AIR VICE-MARSHAL E. A. DALEY (Victoria) said that an attempt at uniformity had been made by the services in medical classification of enlisting personnel. The Royal Australian Air Force had retained two hospitals, each of 130 beds. These hospitals had assisted the Royal Australian Air Force Medical Service in obtaining medical officers and in providing clinical experience and interest for them. The service at present employed 35 whole-time officers at home and abroad. The Royal Australian Air Force had also retained a nursing service and auxiliary services. Air Vice-Marshal Daley supported the idea that training should be provided in the medical curriculum in the examination of healthy human beings. He preferred the present scheme of medical classification of enlistments to the Pulheems system.

COLONEL J. M. DWYER (South Australia) referred to the classification "conditionally fit", and pointed out some of the grave disadvantages of such a classification. He also referred to a medical officer's difficulties in attempting to assess the mental capacity and emotional stability of a recruit at the first examination. He held that if it had been satisfactorily established that a man had had neurosis, that man should be permanently debarred from front-line service. He said that many medical officers did not even take the trouble to strip recruits properly, and that the standard of physical examinations made by those officers was low.

COLONEL J. G. WHITE (Victoria) said that if military hospitals were not to be provided, the service should practise infiltration tactics and strive for the provision of X-ray and laboratory facilities, and weekly visiting consultant service to camp hospitals. Colonel White, in stressing the importance of the assessment of mental capacity and emotional stability being recognized as a function of the medical service, said that he had on one occasion recommended the promotion of a non-commissioned officer after twelve years' knowledge and observation of the man and after having first-hand knowledge of the man's excellent reaction to front-line service. He had been shown a copy of a psychologist's report on the non-commissioned officer which was adverse and stated that he was unfitted for promotion.

T. K. ALLEN (South Australia) asked if it would not be possible to establish services wings in repatriation hospitals.

COLONEL J. H. STUBBE (Western Australia) asked if the military hospitals had been transferred to the Repatriation Commission or had been loaned. If they had been loaned, he wondered whether they were recoverable.

Major-General Norris, in reply, said that there was at present an influence abroad which was advising that military hospitals should not be reestablished. The Repatriation Commission had been approached and had stated that services wings in repatriation hospitals were unpractical. The Pulheems system of assessment of medical fitness of recruits had never been tried out in time of war. Special training of examiners would be required for its adequate application. Personnel previously classified as "conditionally fit" would be classified as class III under the new uniform medical classification scheme. No man could be accepted as being medically unfit to serve in the

army if he had no disability for civil life. Such men, if not suitable for service, should be released on grounds other than medical—for example, "unlikely to become an efficient soldier".

The motion moved by Major-General Norris from the chair and seconded by Colonel Refshauge was then put to the meeting and carried unanimously.

Medical Problems of High Altitude Flying.

Squadron Leader J. B. Craig (Royal Australian Air Force, Victoria) read a paper entitled "The Medical Problems of High Altitude Flying". He gave a brief review of human limitations for high flight due to oxygen deficiency and made special reference to the physiology of acute hypoxia. He also referred to recent investigations on altitude acclimatization in regard to erythropoiesis and hæmoglobin catabolism. He then discussed decompression sickness and post-decompression shock, dealing with practical aspects of incidence, a method of testing and treatment. Squadron Leader Craig said that problems of vision at high altitude included dazzling glare and its prevention by the provision of suitable filters which had to be adjustable in position. Other factors in the problem were changing colour and the intensity of light; lack of scatter with increased contrasts between light and shadow areas; increased difficulty in air-to-air search because of lack of light and scatter and, particularly, lack of horizon or cloud on which to focus, which resulted in a myopia, similar to "night myopia". Because of an increased requirement to fly by instruments, Squadron Leader Craig laid stress on the need for better presentation and lighting of instruments. He then discussed the prevention of the effects of cold when the outside temperature might be as low as –56° C. He attached special importance to this subject because general body chilling increased susceptibilty to hypoxia and decompression sickness, while localized chilling might affect the functional efficiency of hands for fine manipulations.

Major-General Norris, from the chair, congratulated the Royal Australian Air Force medical service on having the facilities available for investigating the problems discussed, and on having officers under command able and competent to carry out such investigation.

Headaches, Refractive Errors and Eye Strain.

Surgeon Captain H. W. Gault (Victoria) discussed headaches with reference to refractive errors and eye strain in the Royal Australian Navy. He said that he had examined some hundreds of naval ratings for visual defects. Most of them were sent for examination because of headaches, which it was thought might have been due to refractive errors; in very few cases was that so. The rating with a considerable refractive error rarely complained of headache; he complained of inability to see distant objects or of blurring on reading. He was found to have myopia, myopic astigmatism or hypermetropic astigmatism, was given spectacles, and rarely troubled the eye specialist again for at least a year. The usual type of rating complained of "terrible headaches", especially when he read. His visual acuity might be 6/6 or 6/75 and his near vision was D=0·5. Many had been given spectacles in their earlier years. Usually negligible errors of refraction were found, and nearly all the subjects did a minimum of reading. They were generally of nervous type, easily upset by an unfavourable environment, unhappy in the service, and having in the past frequently changed their jobs. Some responded to a suitable talk with explanation of the psychological causes of their headaches; the rest did not respond, and consulted many optometrists. Their obvious desire was to leave the service. A few subjects combined refractive errors with a debilitated state. Surgeon Captain Gault said that his summary of the position was that headaches were common in young men; they were mainly due to worry or strain, and the prescribing of glasses was not a panacea.

Colonel W. D. Refshauge (Victoria) said that he thought Surgeon Captain Gault's contribution was very important. The occurrence of symptoms such as that described might often be due to a breakdown in man management, and to lack of appreciation on the part of leaders of the conditions under which a man was serving.

Major-General Norris, from the chair, agreed that such problems were often junior leader problems.

Post-Decompression Shock.

Squadron Leader W. L. Rait (Victoria), in a paper on post-decompression shock, said that collapse might occur either during decompression or after return to ground level, when it was known as post-decompression shock. He presented figures to show the incidence of impending or actual collapse at altitude and added that roughly half those affected developed symptoms of impending or actual collapse in conjunction with other symptoms; in the remainder it was uncomplicated. Speaking of post-decompression shock, Squadron Leader Rait said that in three authenticated cases in England, all subjects showed evidence of hæmoconcentration; one had associated non-fatal pulmonary œdema, the second had collapse of the apex of his left lung and recovered, and the third died, autopsy revealing gross hæmoconcentration, pulmonary œdema and serous cavity effusion. The risk of collapse and post-decompression shock increased with age and with increasing weight. At present all subjects showing symptoms of decompression sickness other than uncomplicated "bends" pain relieved by descent to 25,000 feet were kept in bed under observation, in the hope that the condition might be detected in an early stage. The actual incidence of post-decompression shock was not known; during World War II the incidence of fatalities in America was approximately one in 80,000. Most of the investigations of decompression sickness had been directed at the formation and distribution of gas bubbles in the blood-stream and tissues, but no light had been shed on the mechanism of decompression shock and little on most of the other forms of decompression sickness. The available clinical work suggested that in some subjects a trigger mechanism was set off during decompression, which started the development of secondary shock. The trigger mechanism might possibly be either aeroembolism or a biochemical disturbance. Three types of biochemical disturbance had been suggested: (i) an upset of nucleotide metabolism, (ii) acute adrenal cortical insufficiency or lack of adrenal cortical response, (iii) a histamine upset. Investigations that suggested themselves were: (i) estimation of the plasma pentose content both immediately and at intervals after the end of a flight (any increase would indicate a disturbance of nucleotide metabolism); (ii) estimation of the ascorbic acid content of the adrenal glands and an absolute lymphocyte count (a total eosinophile cell count in humans); (iii) determination of the histamine and histaminase content of the lung after decompression. Squadron Leader Rait made a number of recommendations. (i) Decompression tests should always be conducted under the direct supervision of a medical officer, who was responsible for the well-being of the subjects during and immediately after the test. (ii) Before the decompression, the medical officer should ask about recent illnesses, record the blood pressure and body temperature and examine the subject's heart; the blood pressure should be recorded again after descent. (iii) It should be remembered that untoward symptoms might occur in two phases. The primary reaction occurred during decompression; the second or delayed phase was rare, but might lead to fatal coma. It developed minutes or hours after return to normal atmospheric pressure and was called post-decompression shock. (iv) When any of the following symptoms or signs developed during decompression, special care should be taken: (*a*) pallor, sweating, collapse; (*b*) cough, pain in the chest, repeated clearing of the throat; (*c*) headache or neurological symptoms or signs; (*d*) nausea or vomiting; (*e*) general malaise; (*f*) mental confusion or extreme emotional reactions; (*g*) rashes or œdema; (*h*) unconsciousness with or without convulsions. The subject should be kept under observation in sick quarters overnight. (v) If hæmoconcentration or abnorm-

ally low blood pressure developed, the subject should be treated for shock and admitted to the nearest hospital. If any delayed reaction developed, including mild mental change, admission to hospital should be considered. When the hospital had had no previous experience of such cases, the physician in charge of the patient should have the physiological basis of the condition explained, and emphasis should be placed on the following requirements: absolute rest, administration of oxygen, administration of plasma, aspiration of gross pleural effusions and administration of cortisone. The following laboratory investigations should be requested if available: X-ray examination of the heart and chest, hæmatocrit estimations, leucocyte count, and estimations of the blood sugar, plasma chloride, urinary chloride and serum potassium contents. Squadron Leader Rait said in conclusion that the prognosis in cases of decompression shock depended upon restoration of blood pressure. Energetic treatment should be directed towards that end.

Visit to Point Cook.

Members of the Section of Naval, Military and Air Force Medicine and Surgery travelled to Point Cook on Monday, August 25. On arrival they were met by Air Vice-Marshal E. A. Daley. A demonstration of various matters of medical interest had been arranged, and members of the section were conducted through the display by Air Vice-Marshal Daley, Squadron Leader J. B. Craig and members of his staff.

Items of outstanding interest in the display of clothing were the Byrnje string vest, an ingenious insulated inner sole for use with the Mukluk heavy rubber-soled canvas boot, and the woollen wristlets, mittens, and inner and outer hand gloves—the last-mentioned with a nose-wiping pad on the dorsum designed to avoid the necessity of removing even the outer gloves in order to wipe the nose in conditions of extreme cold. Various types of flying suits were displayed, including summer, tropical, winter and electrically heated suits, and anti-blackout suits of two main types, one depending on hydrostatic pressure and the other on air pressure.

Survival kits were a source of much interest, as were the different types of salt-water stills and water de-salters displayed. The survival kit, incorporated in an ejector pilot seat, was a most impressive example of careful and thoughtful design. Apart from the mechanism of release, the survival pack was comprehensive and included such items as a one-man rubber dinghy with paddles; a "Permutit" water purifier bag; water de-salter; a waterproof cloth book of instructions and general information; a heliograph mirror; a burning glass; fishing equipment; a sharpening stone; a waterproof miniature compass; a razor blade; water-purification tablets; rations; first-aid equipment; a poncho weatherproof apron; a water cushion; long-burning matches in a water-proof container; a knife; distress flares and a miniature radio transmitter.

The importance of anoxia and of decompression sickness in relation to flying personnel was discussed, and the discussion was elaborated by a generous display of charts and diagrams, and a display of various types of oxygen equipment.

A decompression chamber in which anoxia tests and decompression tests are conducted was demonstrated.

A demonstration of loading stretcher patients into a Dakota aeroplane followed, and finally a demonstration of flying in a jet-engined aircraft gave the members of the section some idea of the conditions under which pilots are called upon to operate.

At the conclusion of the demonstrations members were entertained at tea in the officers' mess.

Colonel J. Glyn White expressed appreciation of the demonstration on behalf of the members of the section and thanked Air Vice-Marshal Daley and his staff for the most interesting afternoon and for their hospitality.

Correspondence.

MEETING OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

Sir: I have recently addressed a letter to His Excellency the Minister for Defence of your country informing him of the forthcoming fifty-ninth annual meeting of the Association of Military Surgeons of the United States at the Statler Hotel in Washington, D.C., November 17, 18 and 19, 1952, and inviting the chiefs of the medical services of your Army, Navy and Air Force to attend this important convention. Our Department of State has delivered my letter by courier to your Ambassador in Washington.

The Association of Military Surgeons was founded in 1891 and includes among its members many of the world's most eminent military physicians. In view of the outstanding scientific programme that has been arranged for this year's meeting, we are looking forward to having representation from all of the principal nations of the world. In addition to the large number of scientific papers to be presented, there will be elaborate displays and technical exhibits illustrating the latest advances in military medical science.

As a fitting tribute to the physicians from other countries a special convocation is to be held on November 18 during which each delegate present from your country will be decorated with the medal and ribbon of the society and have conferred upon him honorary membership in the Association. On November 20 and 21 an international clinical symposium has been arranged for the visitors from abroad. This will be held in the various government hospitals and medical centres in the Washington area under the auspices of the Surgeons-General of the United States Army, Navy, Air Force and Public Health Service, and the Medical Director of the Veterans Administration.

It will be greatly appreciated if you will publish an appropriate announcement of this meeting for the many readers of your journal so that your country may have the largest possible number of representatives in Washington on this momentous occasion.

Yours, etc.,
Harry G. Armstrong, M.D., President,
The Association of Military Surgeons of the United States.

Headquarters, United States Air Force,
Washington, D.C.,
United States of America.
August 15, 1952.

THE MORTALITY IN AUSTRALIA FROM MEASLES, SCARLATINA AND DIPHTHERIA.

Sir: On page 275 of my paper, "The Mortality in Australia from Measles, Scarlatina and Diphtheria", in the journal of August 23 of this year, I have made faulty comparisons between the English and Australian mortality experience for measles. The correct comparisons can easily be made with the aid of Tables III and V. In 1911 to 1920, at ages one to four years, the mortality from measles in Australia was about one-eighth of that in England. In the war years, the English mortality was still higher at these ages than the Australian, actually more than double the Australian (I have stated that it was less). It had been anticipated that with war conditions, the English rates would have been much higher.

Yours, etc.,
H. O. Lancaster.

School of Public Health and Tropical Medicine,
University of Sydney,
September 12, 1952.

GENERAL PRACTITIONER GROUPS.

Sir: The letter by Dr. B. J. Bouche in the journal of August 23 calls attention to certain deficiencies in Queensland's medical services. Almost all public hospitals are virtually State controlled, and, in accordance with its policy of socialization, the Government proceeds with this objective and gives little heed in many cases to the conditions under which medical officers work.

It is of supreme importance that, in the sparsely populated far west and north of the State, conditions of medical practice should be such that they will result in doctors remaining in these areas. The urgent need of the moment is to induce people to stay on the land, and an efficient medical service is one of the best means of bringing this about. Each of these areas has been neglected by a succession of governments who have failed to provide the ordinary amenities of civilization. This has been mitigated by the work of voluntary organizations, which could be greatly enhanced if the Government gave more attention to these matters instead of attempting to provide free hospitals for all, when a large percentage of the population can pay for themselves by a system of voluntary insurance.

It would be a very good thing if Dr. Winterbotham's general practitioner groups could make a survey of those places where the conditions of medical service are bad, and publish the results of the findings from time to time in the journal.

Yours, etc.,

S.P.

August 23, 1952.

ALCOHOL AND BODY TEMPERATURE.

SIR: The editorial of THE MEDICAL JOURNAL OF AUSTRALIA of September 13, 1952, refers to the harmful effects of alcohol in cold conditions. I do not agree that it should be "avoided as a veritable poison", but consider that its judicious use will save lives.

One of the causes of death due to exposure is that the subject's senses become numbed, and he "gives up trying"—he stops moving his toes within his boots and his fingers within his gloves, and circulatory stasis ensues. He loses the desire to live. To overcome this feeling of resignation is the primary object of treatment before raising the body temperature is commenced. It is true that alcohol raises skin temperature to the detriment of vital centres, but the amount is minimal; and conversely the effect of, say, two ounces of milk at a temperature of 140° F. on the circulatory blood volume of 220 ounces at 96° F. is negligible.

And so the ideal fluid to give to an exposed person, when he is rescued, is something which will stimulate him to fight on against the overpowering cold. There are few substances which have as much effect in this direction as "a dram of Scotch".

Yours, etc.,

DONALD D. BEARD.

67 Edmund Avenue,
Unley,
South Australia.

September 17, 1952.

The Royal Australasian College of Physicians.

WEEK-END MEETING AT THE RECEIVING HOUSE, ROYAL PARK.

THE Victorian State Committee of The Royal Australasian College of Physicians announces that a week-end meeting will be held at the Receiving House, Royal Park, on October 18 and 19, 1952. The following programme has been arranged:

Saturday, October 18: 11 a.m., "Prefrontal Leucotomy", Dr. Cunningham Dax; 11.40 a.m., "Photic Epilepsy", Dr. G. Robertson; 12.15 p.m., "Psychological Aspects of Physical Disability", Dr. F. Graham; 2 p.m., "The Physician's Examination of the Ocular Fundus", Dr. J. Billings; 2.30 p.m., "Intracerebral Hæmatoma", Dr. F. Morgan; 3.10 p.m., "Ætiology of Neurosis", Dr. J. Williams; 4.15 p.m., "Some Focal Organic Syndromes and their Psychogenic Counterparts", Dr. I. Martin.

Sunday, October 19: 10.30 a.m., "Pathological Sleep and Insanity of Organic Origin", Dr. Leonard H. Cox; 11.10 a.m., "Pain as a Symptom of Depression", Dr. H. Maudsley; 12 noon, "Electroencephalography: Its Clinical Significance as Illustrated from a Thousand Records Studied at the Alfred Hospital", Dr. J. Game.

All members of the British Medical Association are invited to attend the meeting.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED SEPTEMBER 13, 1952.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	2(1)	..	..	..	..	..	..	2
Amœbiasis	..	..	..	1(1)	..	..	..	..	1
Ancylostomiasis	..	..	3	..	2(2)	..	..	..	5
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	1	..	..	..	..	..	..	1
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	..	..	2(2)	..	..	1	..	..	3
Diphtheria	3(1)	5(4)	4(3)	..	2(2)	1	..	..	15
Dysentery (Bacillary)	..	3(3)	3(3)	5(3)	1	..	..	..	12
Encephalitis	1	1(1)	..	3(3)	..	..	..	..	5
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	1	..	..	..	..	..	..	1
Infective Hepatitis	..	2	..	..	19(13)	..	..	..	21
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	1	..	5	..	..	..	6
Leptospirosis	..	..	1	..	..	..	..	..	1
Malaria	..	..	..	..	1(1)	..	..	..	1
Meningococcal Infection	5(3)	5(4)	3(3)	1(1)	..	..	..	..	14
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	4(2)	5(3)	..	5(4)	..	..	..	..	14
Puerperal Fever	..	..	1	..	..	..	..	..	1
Rubella	..	67(16)	..	..	3(2)	..	..	..	70
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	12(9)	21(15)	12(5)	..	2(2)	8(2)	..	..	55
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	38(29)	38(25)	21(13)	5(4)	14(10)	6(2)	..	..	117
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	1(1)	..	..	1(1)	..	..	..	2
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

Figures in parentheses are those for the metropolitan area.

SIMS COMMONWEALTH TRAVELLING PROFESSOR.

IT is announced by the Presidents of the Royal College of Surgeons of England and The Royal Australasian College of Physicians that Professor Harold Dew, F.R.C.S. (Eng.), F.R.A.C.S., of Sydney, has been appointed the Sims Commonwealth Travelling Professor for 1953. Professor Dew is Dean of the Faculty of Medicine in the University of Sydney and occupies the Chair of Surgery of that university. He has had a distinguished career and is a world authority on hydatid disease. He left Sydney on September 20 to visit Chile at the joint invitation of the Government and university of that country. He will speak at the Fourth International Congress on Hydatid Disease. Professor Dew will then proceed to England, where he expects to arrive early in January, 1953.

The Sims Commonwealth Travelling Professorship was endowed in 1947 by Sir Arthur Sims and family of Christchurch, New Zealand, with the primary object of furthering the advancement of medical science by the interchange of qualified medical persons between the component parts of the United Kingdom and the British Commonwealth.

Professor Dew is the first Sims Commonwealth Travelling Professor to go from Australia, his predecessors all having come from the United Kingdom.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

The Royal Prince Alfred Hospital Medical Officers' Association Reunion Week.

THE Royal Prince Alfred Hospital Medical Officers' Association Reunion will be held from October 13 to October 24, 1952. It will cover medicine, surgery, gynæcology and obstetrics. Twelve places will be reserved for post-graduate students who are not members of the Association, and who should make application to attend to the Course Secretary, the Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 5238, BW 7483.

Obituary.

JOHN DALE.

WE regret to announce the death of Dr. John Dale, which occurred on September 27, 1952, at Venice, Italy.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1950, as duly qualified medical practitioners: Turner, Charles Trevor, M.B., B.S., 1914 (Univ. Adelaide); Jones, Lindsay Henry, M.B., B.S., 1950 (Univ. Melbourne); Symonds, Maurice Isadore, M.B., B.S., 1943 (Univ. Melbourne); Garrett, David Allan, M.B., B.S., 1952 (Univ. Sydney); Vanderfield, Ian Rodger, M.B., B.S., 1952 (Univ. Sydney); O'Rourke, Charles Michael John, M.B., B.Ch., 1951 (Nat. Univ. Ireland); Clark, James Francis, L.R.C.P., L.R.C.S. (Edinburgh), L.R.F.P.S. (Glasgow), 1937; Struan-Marshall, John Laurance, L.M.S.S.A. (London), 1946; ten Seldam, Rolf Edward Jan, registered in accordance with the provisions of Section 17 (2) of the *Medical Practitioners Act*, 1938-1950.

The following additional qualifications have been registered: Allsop, John Leslie (M.B., B.S., 1946, Univ. Sydney), M.R.A.C.P., 1952; Stuckey, Gordon Clarence (M.B., B.S., 1948, Univ. Sydney), Diploma in Ophthalmology, 1951, R.C.P. (London), R.C.S. (England); Bolliger, Walter (M.B., B.S., 1945, Univ. Sydney), M.R.C.P. (Edinburgh), 1952; Hooper, Francis Maxwell (M.B., B.S., 1945, Univ. Sydney), F.F.R. (London), 1952.

Medical Appointments.

Dr. R. A. MacDougall has been appointed a public vaccinator for the Borough of Koroit, Victoria.

Dr. L. L. O. Bevan has been appointed a public vaccinator for the Shire of Ferntree Gully, Victoria.

Dr. N. E. Kirkwood has been appointed medical superintendent in the Department of Public Health of New South Wales.

Diary for the Month.

OCT. 13.—Victorian Branch, B.M.A.: Finance Subcommittee.
OCT. 14.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
OCT. 14.—New South Wales Branch, B.M.A.: Organization and Science Committee.
OCT. 15.—Western Australian Branch, B.M.A.: General Meeting.
OCT. 16.—Victorian Branch, B.M.A.: Executive Committee.
OCT. 21.—New South Wales Branch, B.M.A.: Medical Politics Committee.
OCT. 22.—Victorian Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

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